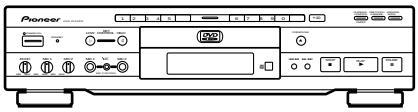
Service Manual



ORDER NO.
RRV2205

DVD PLAYER
DV-K102

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	The voltage can be converted by the following method.	Regional restriction codes (region number)
	DV-K102			
RL	O	AC110-127/220-240V	Automatic select	3
RAM	O	AC110-127/220-240V	Automatic select	6
RL/RD	O	AC110-127/220-240V	Automatic select	4
RD/RA	O	AC110-127/220-240V	Automatic select	1

CONTENTS

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PIONEER ELECTRONIC (EUROPE) N.V. Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936

T – ZZY SEPT. 1999 Printed in Japan

1. SAFETY INFORMATION

This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

IMPORTANT

THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS

FOR DVD : MAXIMUM OUTPUT POWER : 5 mW
WAVELENGTH : 655 nm
FOR CD : MAXIMUM OUTPUT POWER : 5mW
WAVELENGTH : 785 nm

Additional Laser Caution

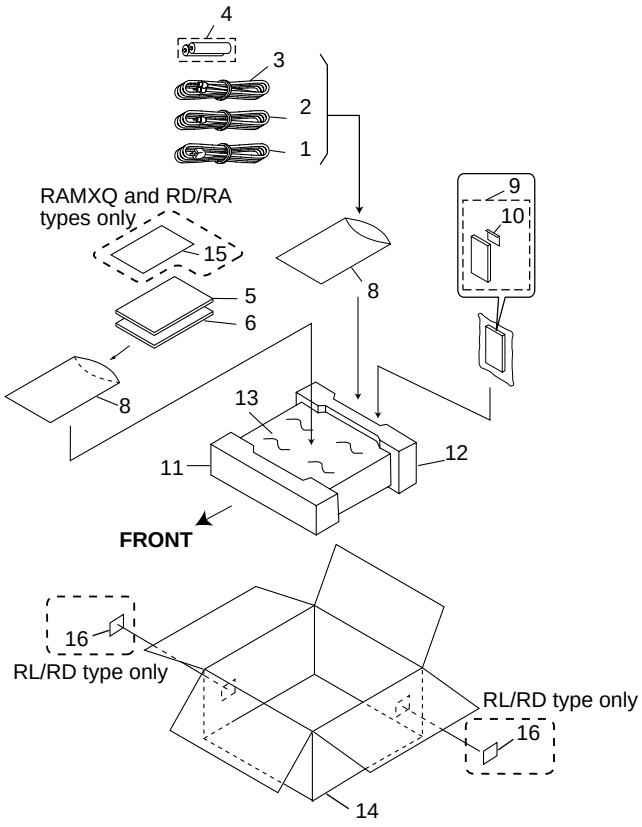
1. Inside detection switch (S201 on the SMEB assy) and loading-status detection switch (S301 on the LOSB assy) are detected by the microprocessor (IC11 in the DVDM assy).
   • To permit the laser diode to oscillate, it is required to set the inside detection switch for the inside position (S201 : ON) and to set the loading-status detection switch for the clamp position (the center terminal of S301 is shorted to +5V). The 655 nm laser diode for DVD oscillation will continue if pin 19 of IC1 is shorted to +5V (fault condition) in the DVDM assy.
   The 785 nm laser diode for CD oscillates if pin 20 of IC1 is shorted to +5V in the DVDM assy.
   In the test mode ∗ , the laser diode oscillates when microprocessor detects a PLAY signal, or when the PLAY key is pressed (S106 ON in the FLKY assy), with the above requirements satisfied.
2. When the cover is open, close viewing through the objective lens with the naked eye will cause exposure to the laser beam.

∗ : See page 42.

2. EXPLODED VIEWS AND PARTS LIST

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
● *Screws adjacent to ▼ mark on the product are used for disassembly.*

2.1 PACKING



(1) PACKING PARTS LIST

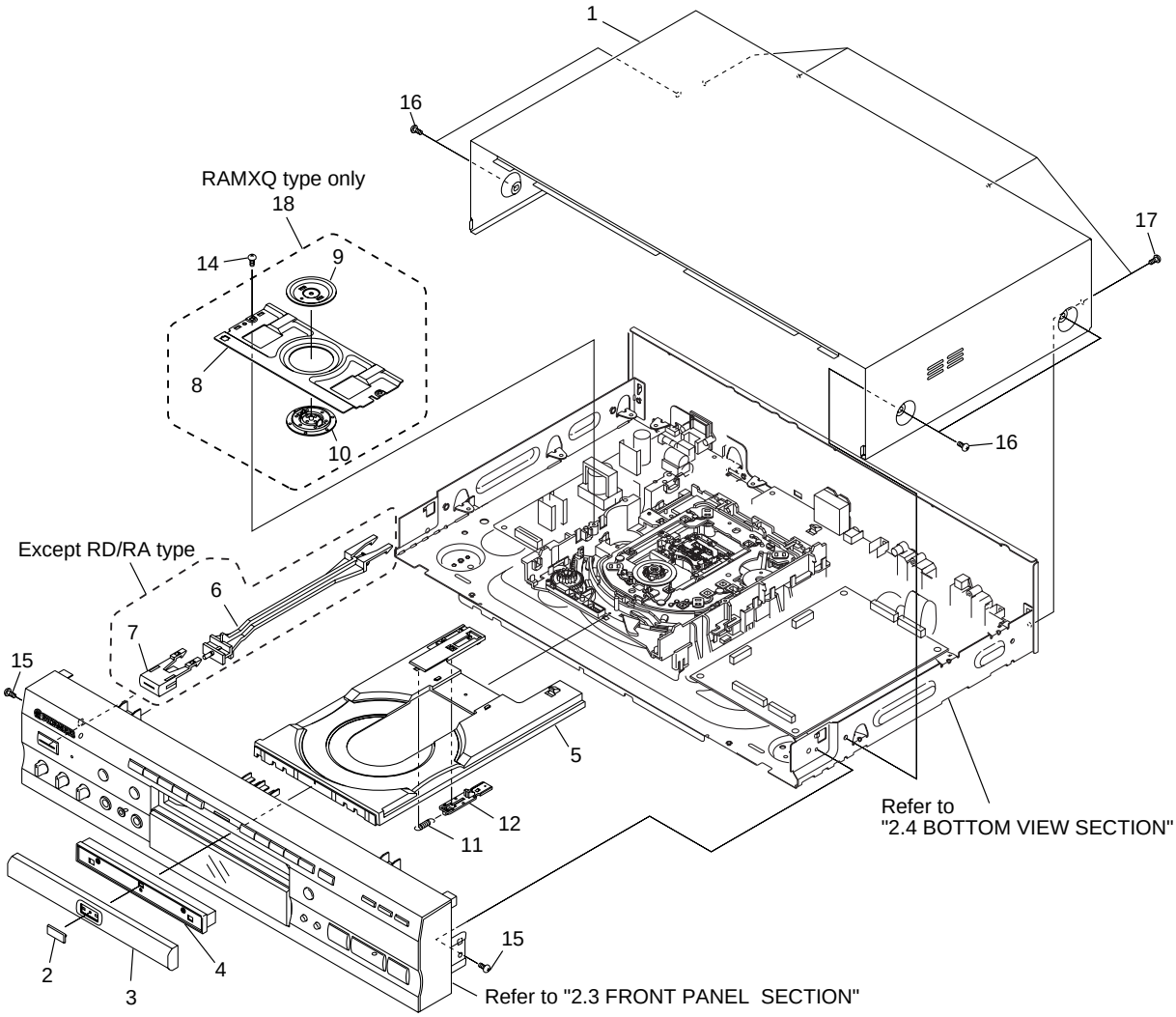
Mark	No.	Description	Part No.
⚠	1	Power Cord	See Contrast table (2)
	2	Video Cord (L=1.5m)	See Contrast table (2)
	3	Audio Cord (L=1.5m)	See Contrast table (2)
NSP	4	Dry Cell Battery (R6P, AA)	See Contrast table (2)
	5	Operating Instructions (English)	VRB1232
	6	Operating Instructions	See Contrast table (2)
	7	● ● ● ● ●	
	8	Polyethylene Bag	VHL1051
	9	Remote Control Unit (CU-DV048)	VXX2642
	10	Battery Cover	VNK4467
	11	Pad F	VHA1238
	12	Pad R	VHA1239
	13	Mirror Mat Sheet	Z23-007
	14	Packing Case	See Contrast table (2)
NSP	15	Warranty Card	See Contrast table (2)
	16	Region Label P4	See Contrast table (2)

(2) CONTRAST TABLE

RL, RAMXQ, RL/RD and RD/RA types are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.				Remarks
			RL type	RAMXQ type	RL/RD type	RD/RA type	
⚠	1	Power Cord	ADG1127	ADG7018	ADG1127	ADG7003	
	2	Video Cord (L=1.5m)	VDE1034	VDE1055	VDE1034	VDE1034	
	3	Audio Cord (L=1.5m)	VDE1033	VDE1054	VDE1033	VDE1033	
NSP	4	Dry Cell Battery (R6P, AA)	VEM-013	VEM1010	VEM-013	VEM-013	
	6	Operating Instructions (Trad-chinese)	VRC1103	Not used	Not used	Not used	
	6	Operating Instructions (Simp-chinese)	Not used	VRC1102	Not used	Not used	
	14	Packing Case	VHG1847	VHG1844	VHG1847	VHG1818	
NSP	15	Warranty Card	Not used	ARY7028	Not used	ARY7025	
	16	Region Label P4	Not used	Not used	VRW1705	Not used	

2.2 EXTERIOR SECTION



(1) EXTERIOR SECTION PARTS LIST

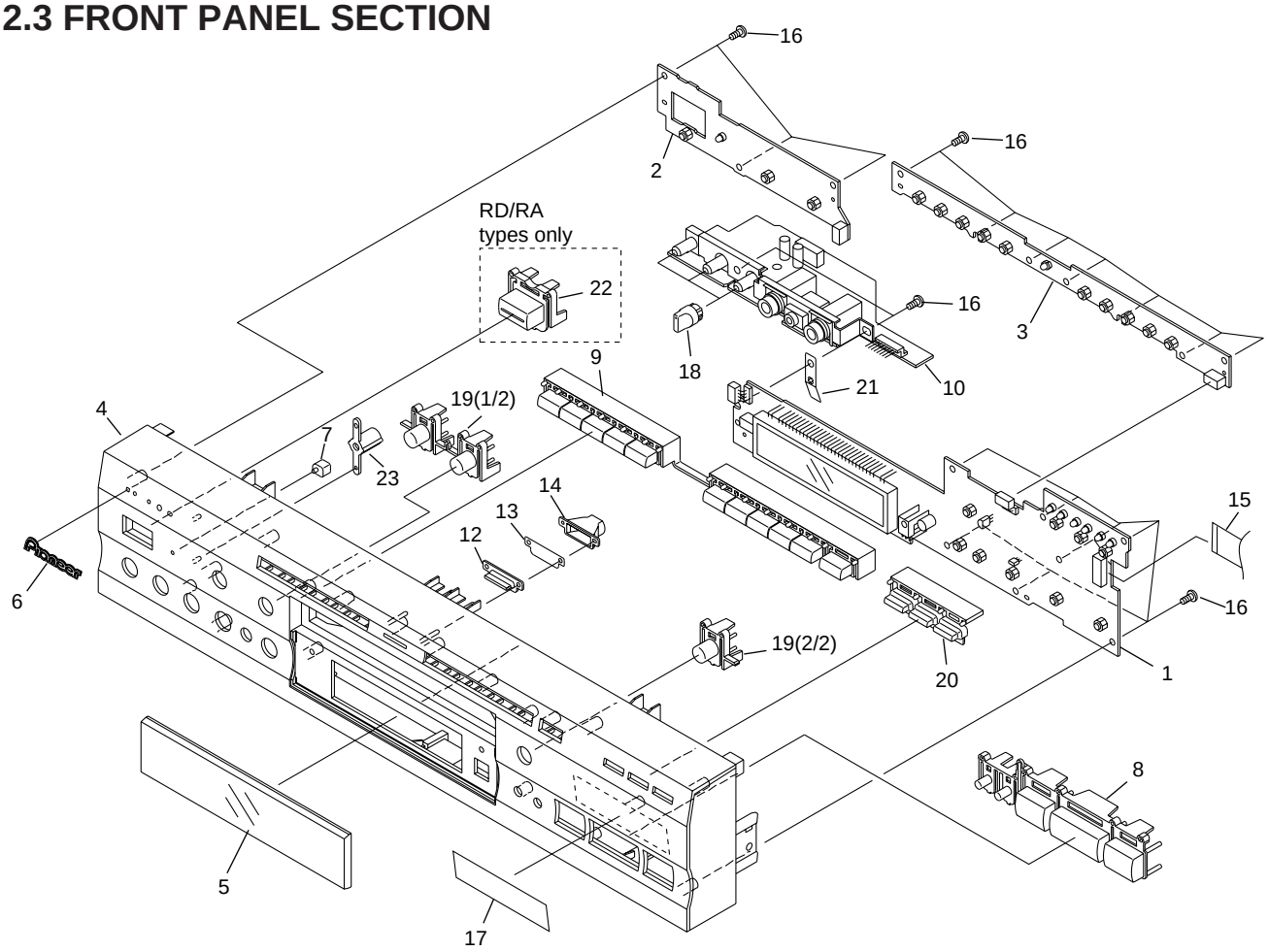
Mark	No.	Description	Part No.
	1	Bonnet Case S	VXX2620
	2	DVD Plate	VAM1089
	3	Tray Panel Plate	VNK4515
	4	Tray Panel	VNK4158
	5	Tray	VNL1731
	6	Power Button Joint	See Contrast table (2)
	7	Power Button	See Contrast table (2)
	8	Bridge	VNE2069
	9	Clamper Plate	VNE2068
	10	Clamper	VNL1738
	11	Tray Stopper Spring	VBH1277
	12	Tray Stopper	VNL1739
	13	• • • • •	
	14	Screw	BPZ26P080FZK
	15	Screw	IBZ30P080FMC
	16	Screw	BCZ40P060FNI
	17	Screw	BBZ30P080FMC
NSP	18	Clamper Assy	See Contrast table (2)

(2) CONTRAST TABLE

RL, RAMXQ, RL/RD and RD/RA types are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.				Remarks
			RL type	RAMXQ type	RL/RD type	RD/RA type	
	6	Power Button Joint	VNK4267	VNK4267	VNK4267	Not used	
	7	Power Button	VNK4159	VNK4159	VNK4159	Not used	
NSP	18	Clamper Assy	Not used	VXA2379	Not used	Not used	

2.3 FRONT PANEL SECTION



(1) FRONT PANEL SECTION PARTS LIST

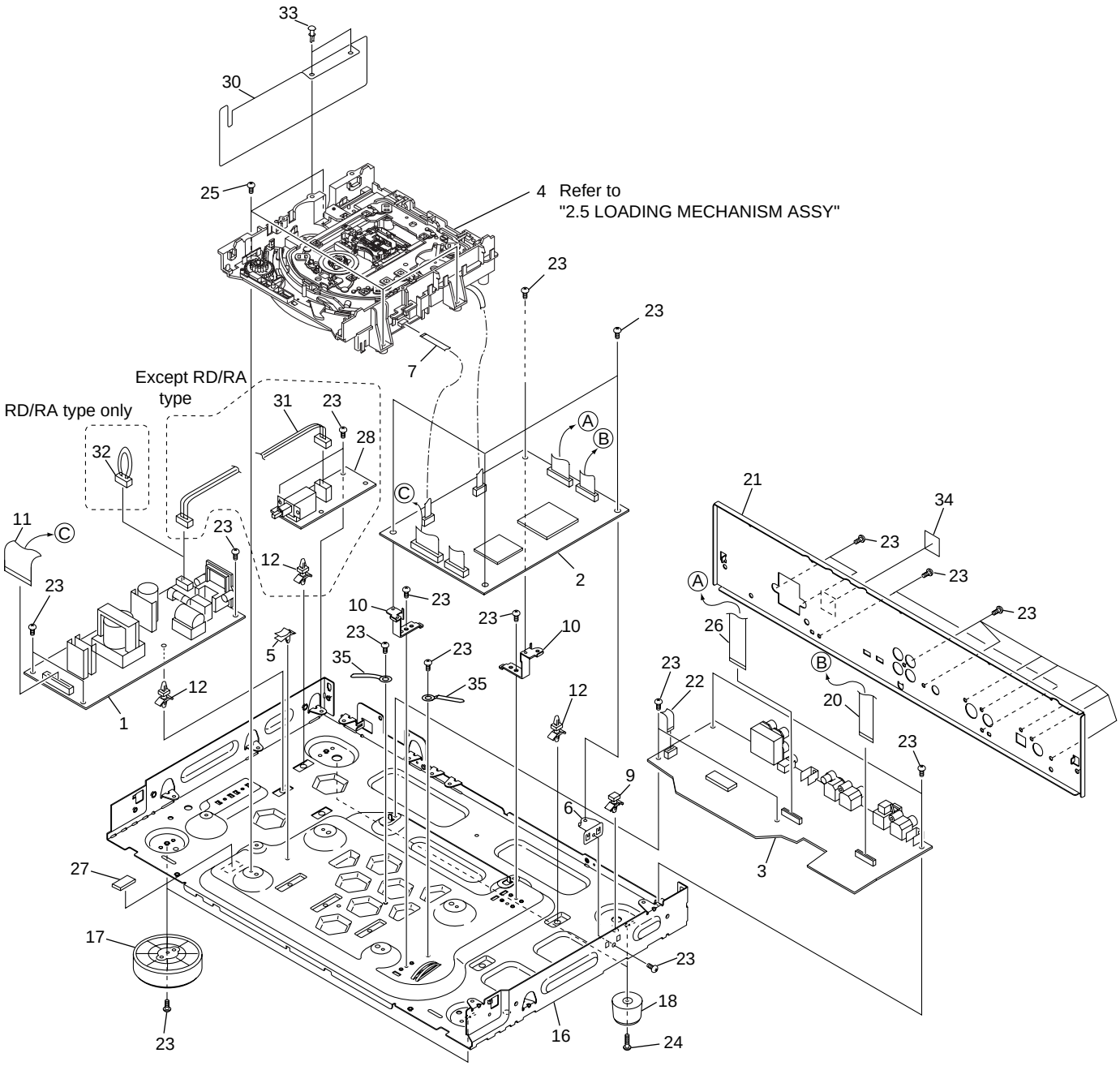
Mark	No.	Description	Part No.
	1	FLKY Assy	See Contrast table (2)
NSP	2	PWSB Assy	See Contrast table (2)
NSP	3	KYLB Assy	VWG2046
	4	Front Panel	See Contrast table (2)
	5	FL Lens	VAH1322
	6	Name Plate	PAM1779
	7	LED Lens	PNW2019
	8	Main Key	VNK4361
	9	11 Key	VNK4271
	10	MICB Assy	VWV1668
	11	•••••	
	12	Illumination Lens	VNK4264
	13	Illumination Filter	VEC1983
	14	Illumination Holder	VNK4265
	15	Flexible Cable (14P) (FLKY CN101 – DVDM CN1)	VDA1646
	16	Screw	BBZ30P080FMC
NSP	17	Getter	VRW1784
	18	Volume Knob	VNK4279
	19	3 Key	VNK4270
	20	Light Key	VNK4514
	21	Earth Plate	VBK1075
	22	Power Button	See Contrast table (2)
	23	Lens Holder	VNK4266

(2) CONTRAST TABLE

RL, RAMXQ, RL/RD and RD/RA types are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.				Remarks
			RL type	RAMXQ type	RL/RD type	RD/RA type	
	1	FLKY Assy	VWG2045	VWG2077	VWG2045	VWG2078	
NSP	2	PWSB Assy	VWG2047	VWG2047	VWG2047	VWG2079	
	4	Front Panel	VNK4540	VNK4565	VNK4540	VNK4513	
	22	Power Button	Not used	Not used	Not used	VNK4059	

2.4 BOTTOM VIEW SECTION



(1) BOTTOM VIEW SECTION PARTS LIST

Mark	No.	Description	Part No.
⚠	1	POWER SUPPLY Assy	VWR1313
	2	DVDM Assy	VWS1392
	3	KRJB Assy	See Contrast table (2)
NSP	4	Loading Mechanism Assy	VWT1164
	5	Flat Cable Clip	VEC2018
NSP	6	DVDM Holder	VNE2208
	7	Flexible Cable (12P) (LOSB CN301 – DVDM CN3)	VDA1692
	8	• • • • •	
NSP	9	Card Spacer	DEC1770
NSP	10	PCB Holder	VNE2207
	11	Flexible Cable (26P) (POWER SUPPLY CN201 – DVDM CN2)	VDA1689
NSP	12	PCB Holder	PNW2100
	13	• • • • •	
	14	• • • • •	
	15	• • • • •	
NSP	16	Chassis	See Contrast table (2)
	17	Insulator (F)	PNW2766
	18	Insulator Assy	VXA1680
	19	• • • • •	
	20	Flexible Cable (14P) (KRJB CN501 – DVDM CN60)	VDA1724
	21	Rear Panel	See Contrast table (2)
	22	Flexible Cable (5P) (KRJB CN401 – MICB CN4020)	VDA1740
	23	Screw	BBZ30P080FMC
	24	Screw	BBZ30P180FMC
	25	Screw	BBZ30P100FMC
	26	Flexible Cable (19P) (KRJB CN101 – DVDM CN70)	VDA1741
NSP	27	Filter Cushion	VEC1287
	28	MSWB Assy	See Contrast table (2)
	29	• • • • •	
	30	Sheet	VEC2000
NSP	31	Housing Assy (2P) (POWER SUPPLY CN102 – MSWB CN10)	See Contrast table (2)
NSP ⚠	32	Housing Assy	See Contrast table (2)
	33	Nylon Rivet	AEC-525
	34	Region Label R4	See Contrast table (2)
NSP	35	Cord Stopper	ZCB-169Z

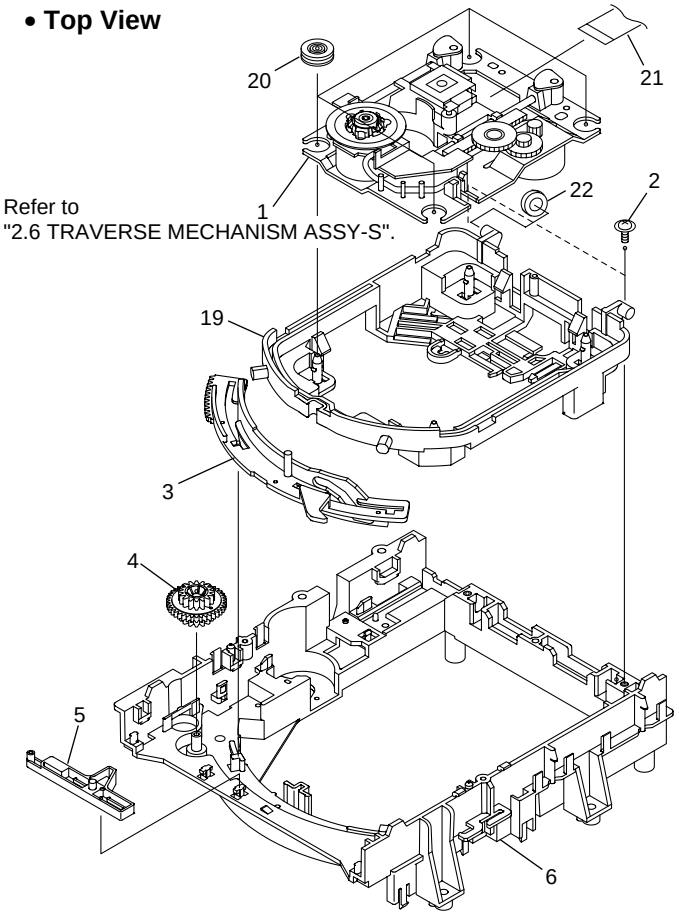
(2) CONTRAST TABLE

RL, RAMXQ and RD/RA types are constructed the same except for the following :

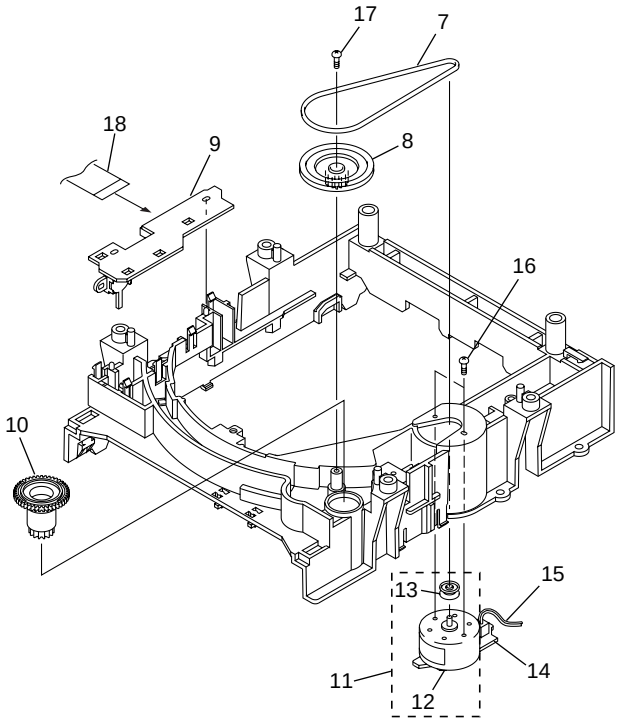
Mark	No.	Symbol and Description	Part No.				Remarks
			RL type	RAMXQ type	RL/RD type	RD/RA type	
	3	KRJB Assy	VWV1672	VWV1672	VWV1672	VWV1704	
NSP	16	Chassis	VNA2122	VNA2123	VNA2122	VNA2101	
	21	Rear Panel	VNA2130	VNA2129	VNA2130	VNA2100	
	28	MSWB Assy	VWG2134	VWG2134	VWG2134	Not used	
NSP	31	HOUSING Assy (2P)	VKP2160	VKP2160	VKP2160	Not used	
NSP ⚠	32	HOUSING Assy	Not used	Not used	Not used	VKP2189	
	34	Region Label R4	Not used	Not used	VRW1704	Not used	

2.5 LOADING MECHANISM ASSY

• **Top View**



• **Bottom View**

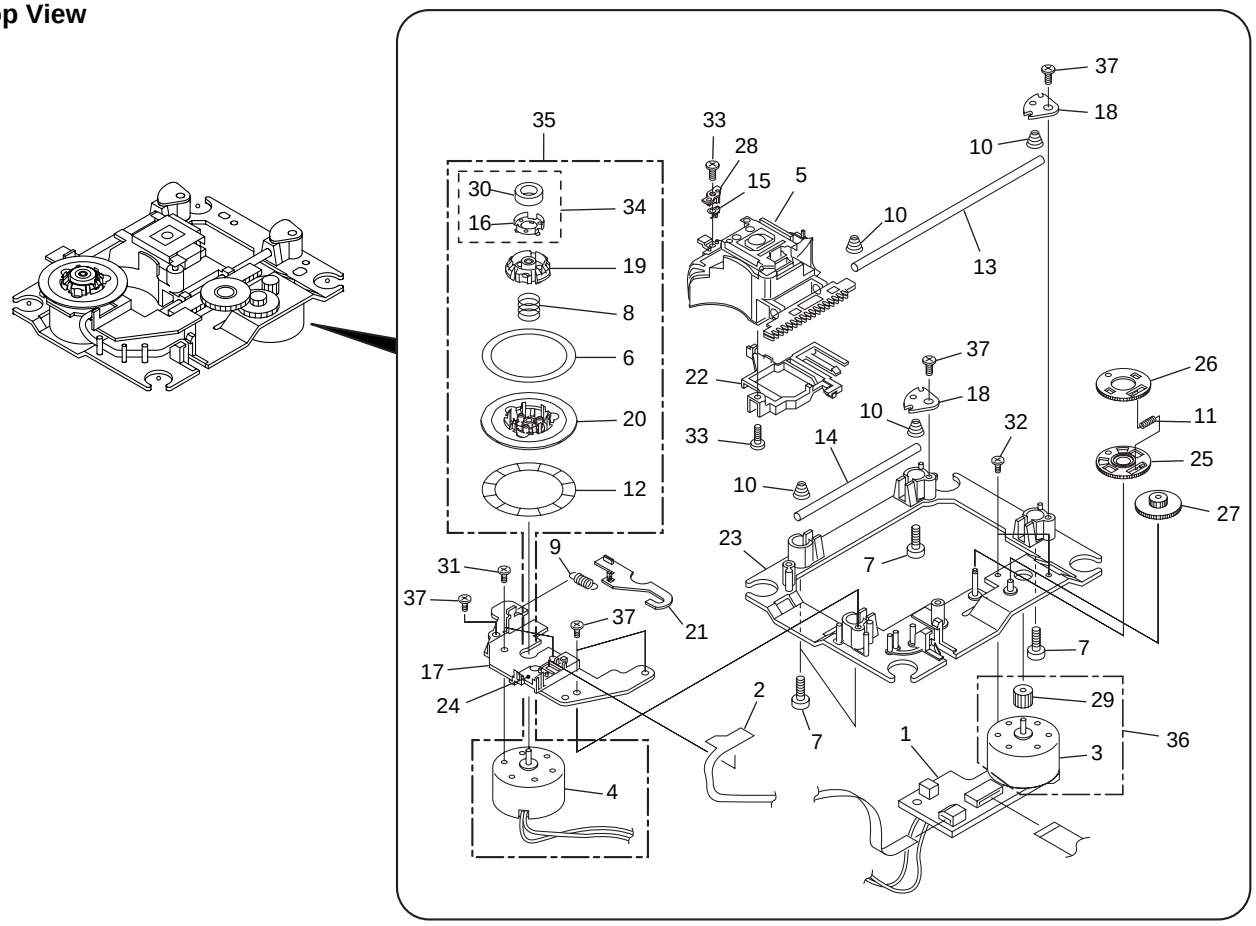


● LOADING MECHANISM ASSY PARTS LIST

Mark	No.	Description	Part No.
	1	Traverse Mechanism Assy-S	VXX2653
	2	Screw	DBA1006
	3	Drive Cam	VNL1736
	4	Drive Gear	VNL1735
	5	Lock Plate	VNL1820
	6	Loading Base	VNL1730
	7	Belt	VEB1260
	8	Gear Pulley	VNL1733
NSP	9	LOSB Assy	VWG1885
	10	Loading Gear	VNL1734
	11	Loading Motor Assy	VXX2505
	12	DC Motor / 0.3W	PXM1027
	13	Motor Pulley	PNW1634
NSP	14	LOMB Assy	VWG1886
	15	Connector Assy (LOMB CN401 ↔ LOSB CN303)	VKP2198
	16	Screw	VBA1055
	17	Screw	Z39-019
	18	Flexible Cable (08P) (LOSB CN302 ↔ SMEB CN202)	VDA1698
	19	Float Base	VNL1815
	20	Floating Rubber	VEB1286
	21	Flexible Cable (24P) (Pickup Assy ↔ DVDM CN4)	VDA1701
	22	Cushion	VEB1312

2.6 TRAVERSE MECHANISM ASSY-S

• **Top View**

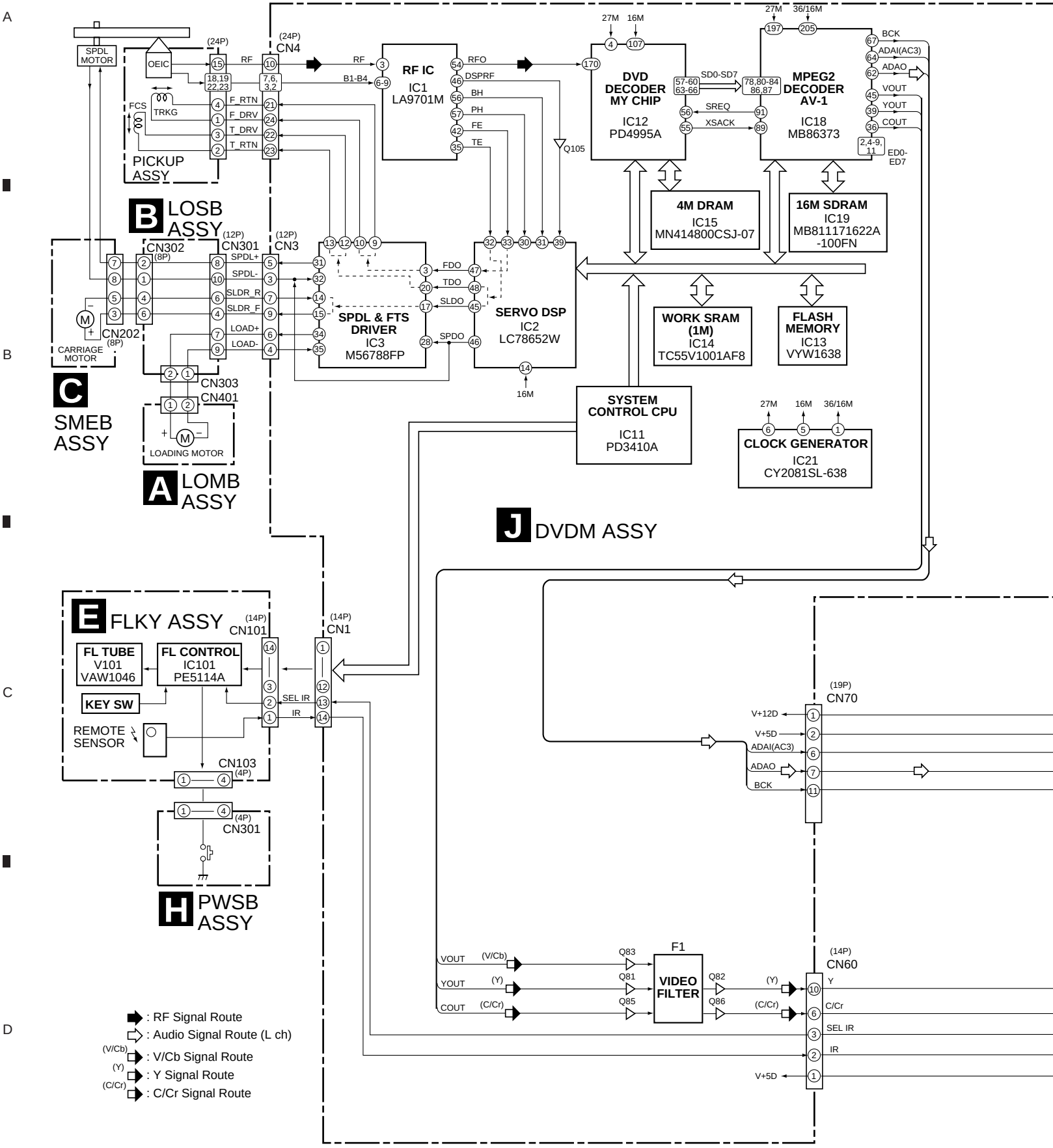


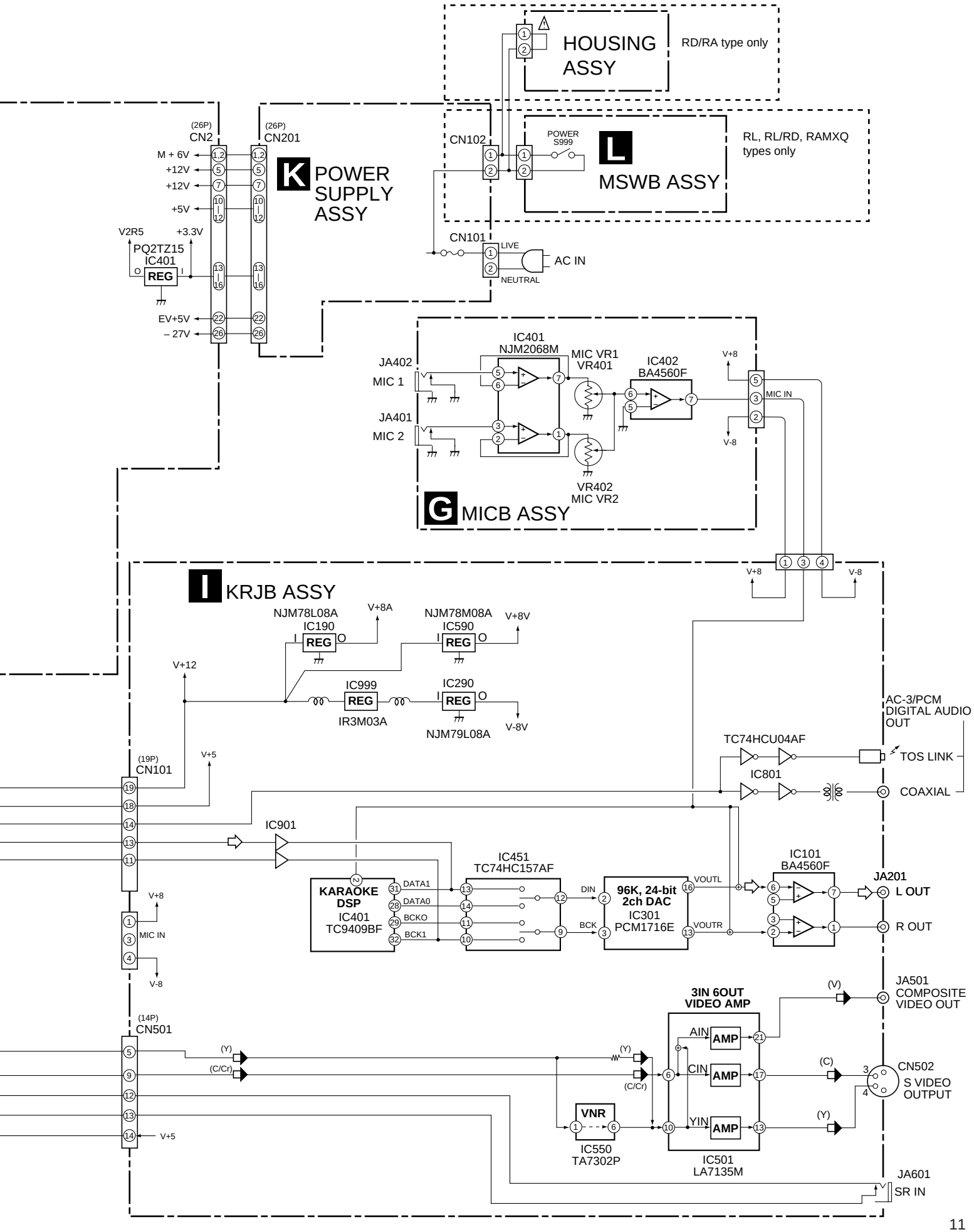
● TRAVERSE MECHANISM ASSY-S PARTS LIST

Mark	No.	Description	Part No.
NSP	1	SMEB Assy	VWG2048
NSP	2	FGSB Assy	VWG2009
	3	Motor	VXM1079
	4	Motor	VXM1078
NSP ⚠	5	Pickup Assy	VWY1055
	6	Table Sheet	DEC2040
	7	Screw	VBA1058
	8	Centering Spring	VBH1278
	9	Hook Spring	VBH1317
	10	Skew Spring	VBH1303
	11	Gear Spring	VBH1308
NSP	12	Reflected Sheet	VEC1959
	13	Guide Bar	VLL1504
	14	Sub-guide Bar	VLL1505
	15	Hold Spring	VNC1017
NSP	16	Magnet Holder	VNE2070
NSP	17	Motor Base	VNE2154
NSP	18	Cover	VNE2155
	19	Centering Ring	VNL1746
NSP	20	Disc Table	VNL1747
	21	Hook	VNL1770
	22	FFC Holder	VNL1802
	23	Mechanism Base	VNL1806
	24	FG Holder	VNL1807
	25	Gear A	VNL1808
	26	Gear B	VNL1809
	27	Gear C	VNL1810
	28	Slider	VNL1811
	29	Gear D	VNL1814
NSP	30	Magnet	VYM1024
	31	Screw	JFZ17P025FZK
	32	Screw	JGZ17P028FMC
	33	Screw	VBA1051
	34	Magnet Holder Assy	VXX2507
	35	Spindle Motor Assy	VXX2649
	36	Carriage Motor Assy	VXX2650
	37	Screw	PBA1069

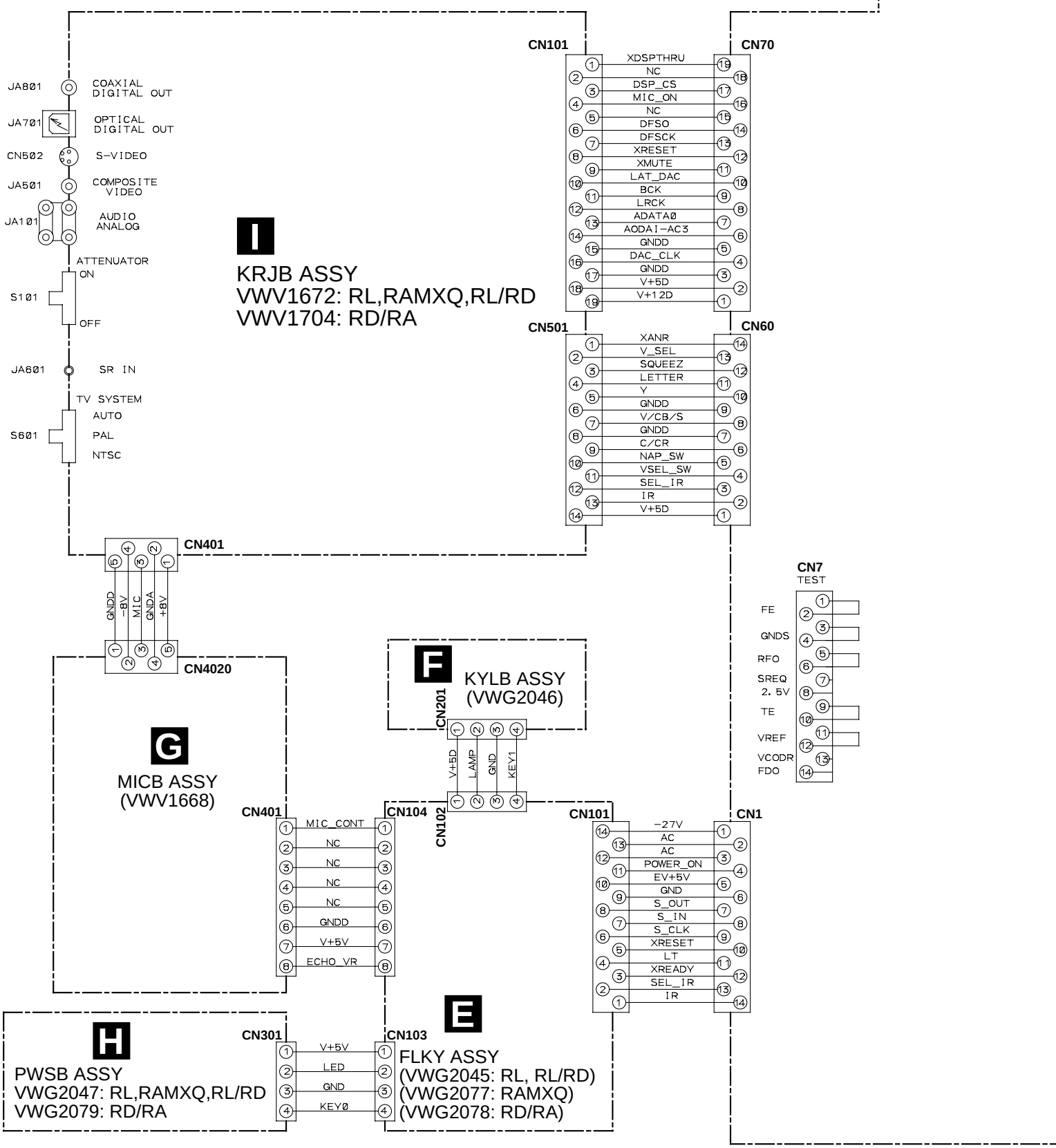
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM

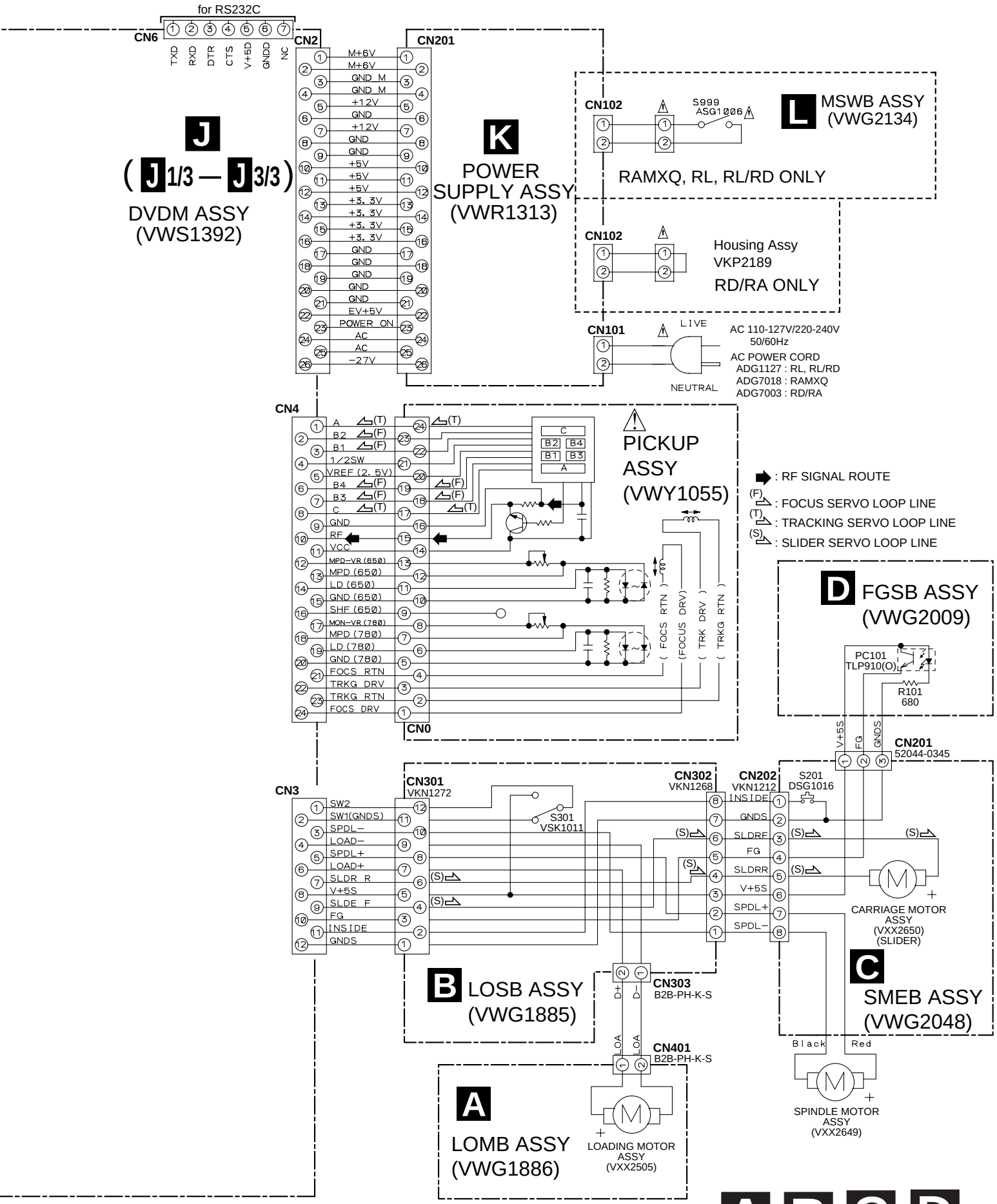



HOUSING ASSY
RD/RA type only
CN102
POWER S999
L MSWB ASSY
RL, RL/RD, RAMXQ types only
CN101
LIVE
NEUTRAL
AC IN
(26P) CN2
(26P) CN201
K POWER SUPPLY ASSY
M + 6V
+12V
+12V
+5V
V2R5
+3.3V
PQ2TZ15
IC401
REG
EV+5V
– 27V
IC401 NJM2068M
MIC VR1 VR401
IC402 BA4560F
JA402
MIC 1
JA401
MIC 2
VR402 MIC VR2
G MICB ASSY
V+8
V-8
MIC IN
I KRJB ASSY
NJM78L08A IC190
V+8A
NJM78M08A IC590
V+8V
V+12
IC999
IR3M03A
IC290
NJM79L08A
V-8V
(19P) CN101
V+5
IC901
KARAOKE DSP IC401 TC9409BF
DATA1
DATA0
BCKO
BCK1
IC451 TC74HC157AF
DIN
BCK
96K, 24-bit 2ch DAC IC301 PCM1716E
VOUTL
VOUTR
IC101 BA4560F
JA201
L OUT
R OUT
TC74HCU04AF
IC801
AC-3/PCM DIGITAL AUDIO OUT
TOS LINK
COAXIAL
(14P) CN501
(Y)
(C/Cr)
3IN 6OUT VIDEO AMP
AIN
CIN
YIN
AMP
VNR
IC550 TA7302P
IC501 LA7135M
JA501 COMPOSITE VIDEO OUT
CN502 S VIDEO OUTPUT
JA601 SR IN

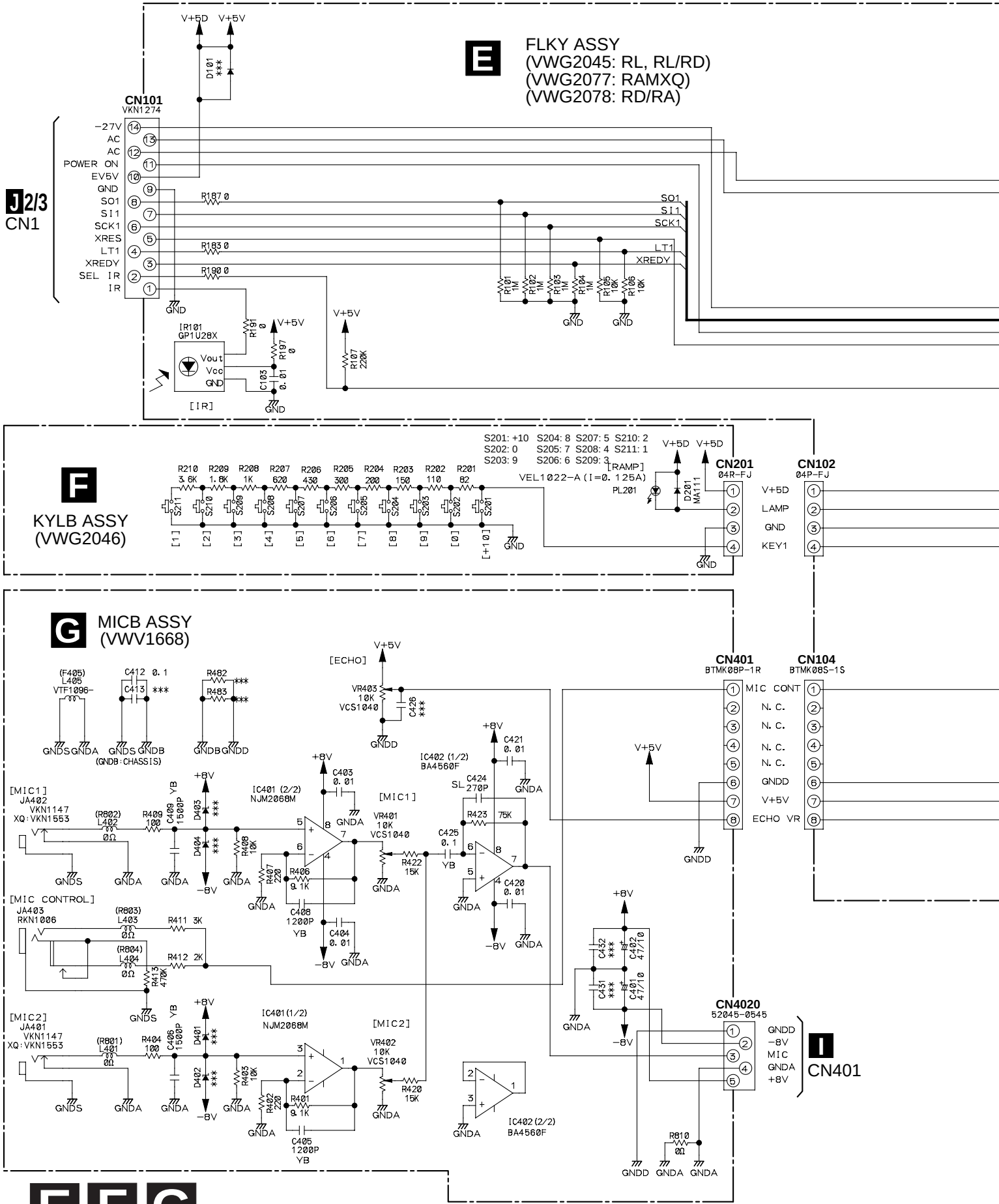
3.2 OVERALL CONNECTION DIAGRAM, LOMB, LOSB, INSB AND FGSB ASSEMBLIES

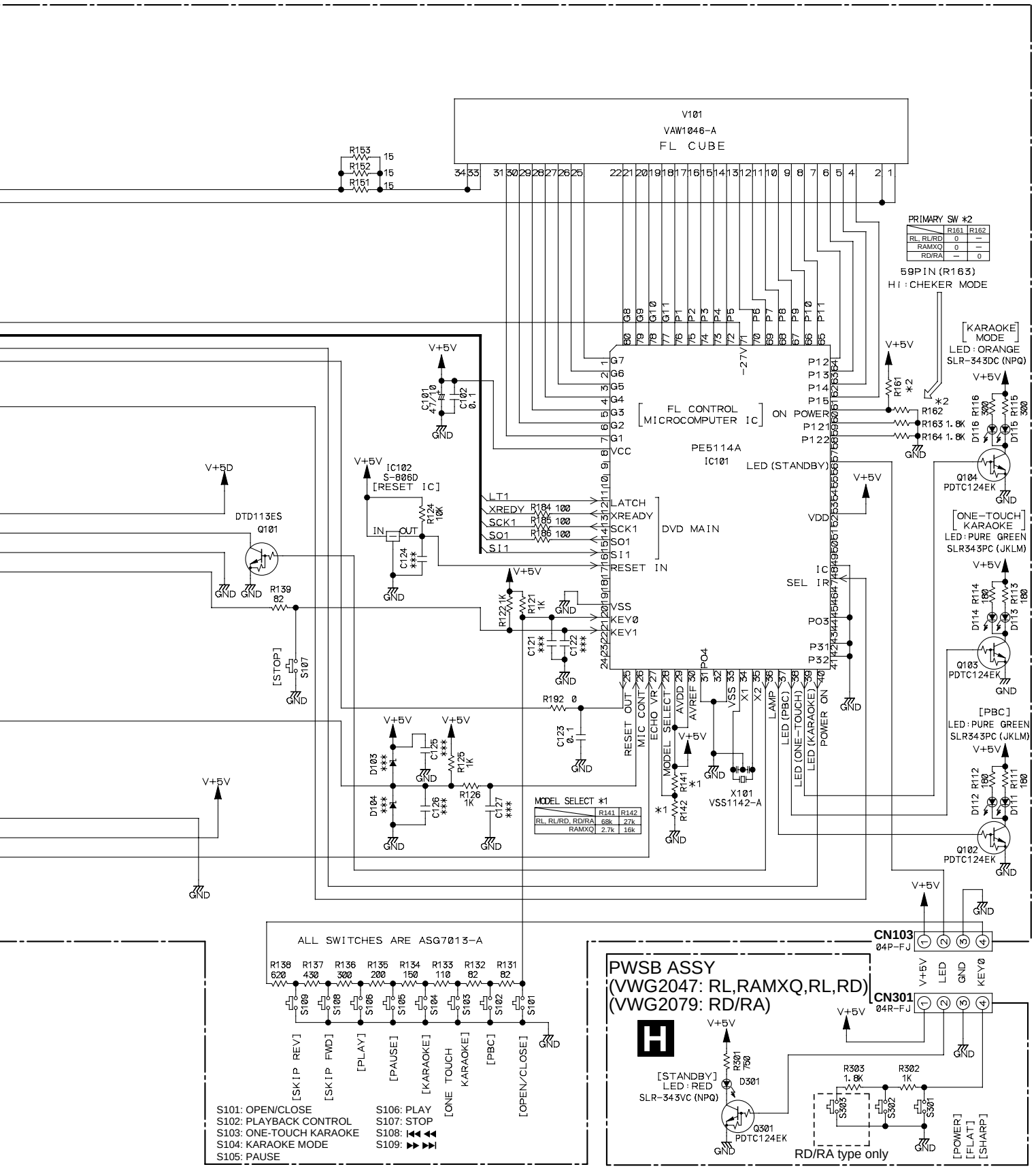


Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".

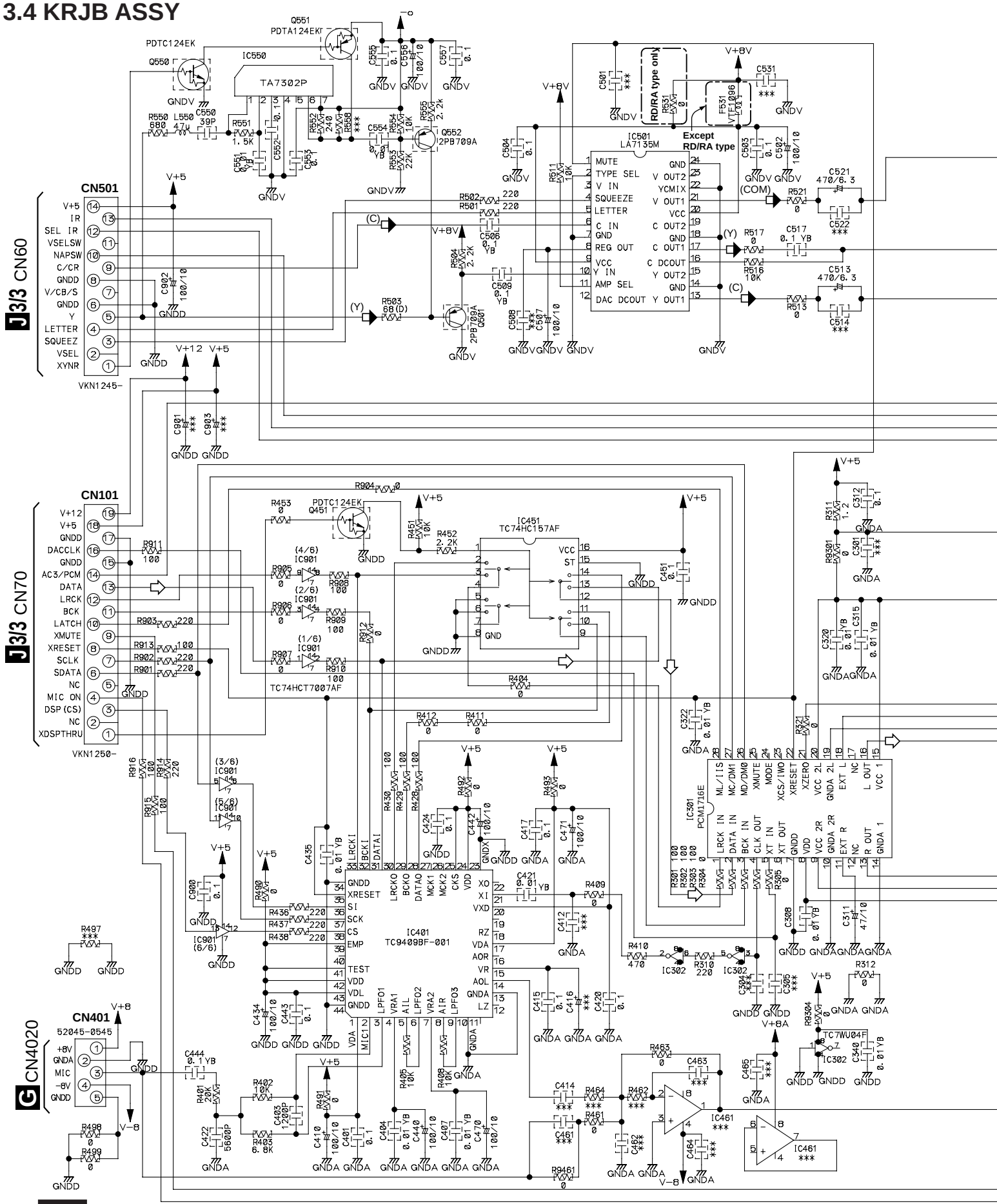


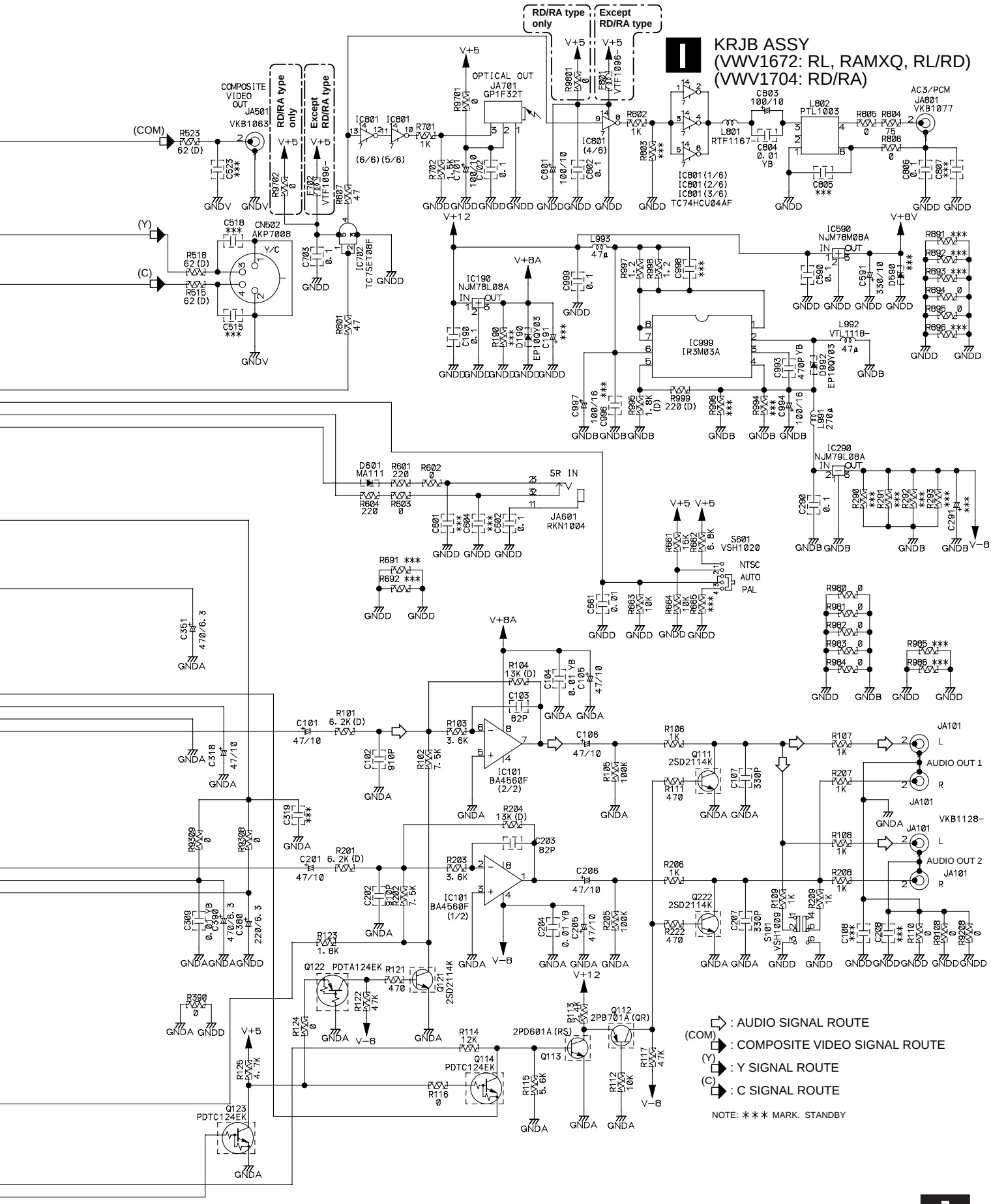
3.3 FLKY, PWSB, KYLB, MICB and PWSB ASSYS




V101
VAW1046-A
FL CUBE
PRIMARY SW *2
59PIN(R163)
Hi:CHEKER MODE
FL CONTROL MICROCOMPUTER IC
PE5114A
IC101
ON POWER
LED (STANDBY)
[KARAOKE MODE
LED:ORANGE
SLR-343DC (NPQ)
[ONE-TOUCH KARAOKE
LED:PURE GREEN
SLR343PC (JKLM)
[PBC]
LED:PURE GREEN
SLR343PC (JKLM)
DVD MAIN
IC102
S-806D
[RESET IC]
DTD113ES
Q101
MODEL SELECT *1
X101
VSS1142-A
ALL SWITCHES ARE ASG7013-A
[SKIP REV]
[SKIP FWD]
[PLAY]
[PAUSE]
[KARAOKE]
[ONE TOUCH KARAOKE]
[PBC]
[OPEN/CLOSE]
S101: OPEN/CLOSE
S102: PLAYBACK CONTROL
S103: ONE-TOUCH KARAOKE
S104: KARAOKE MODE
S105: PAUSE
S106: PLAY
S107: STOP
S108: ⏮ ◀◀
S109: ▶▶ ⏭
PWSB ASSY
(VWG2047: RL,RAMXQ,RL,RD)
(VWG2079: RD/RA)
[STANDBY]
LED:RED
SLR-343VC (NPQ)
RD/RA type only
CN103
04P-FJ
CN301
04R-FJ
[POWER]
[FLAT]
[SHARP]

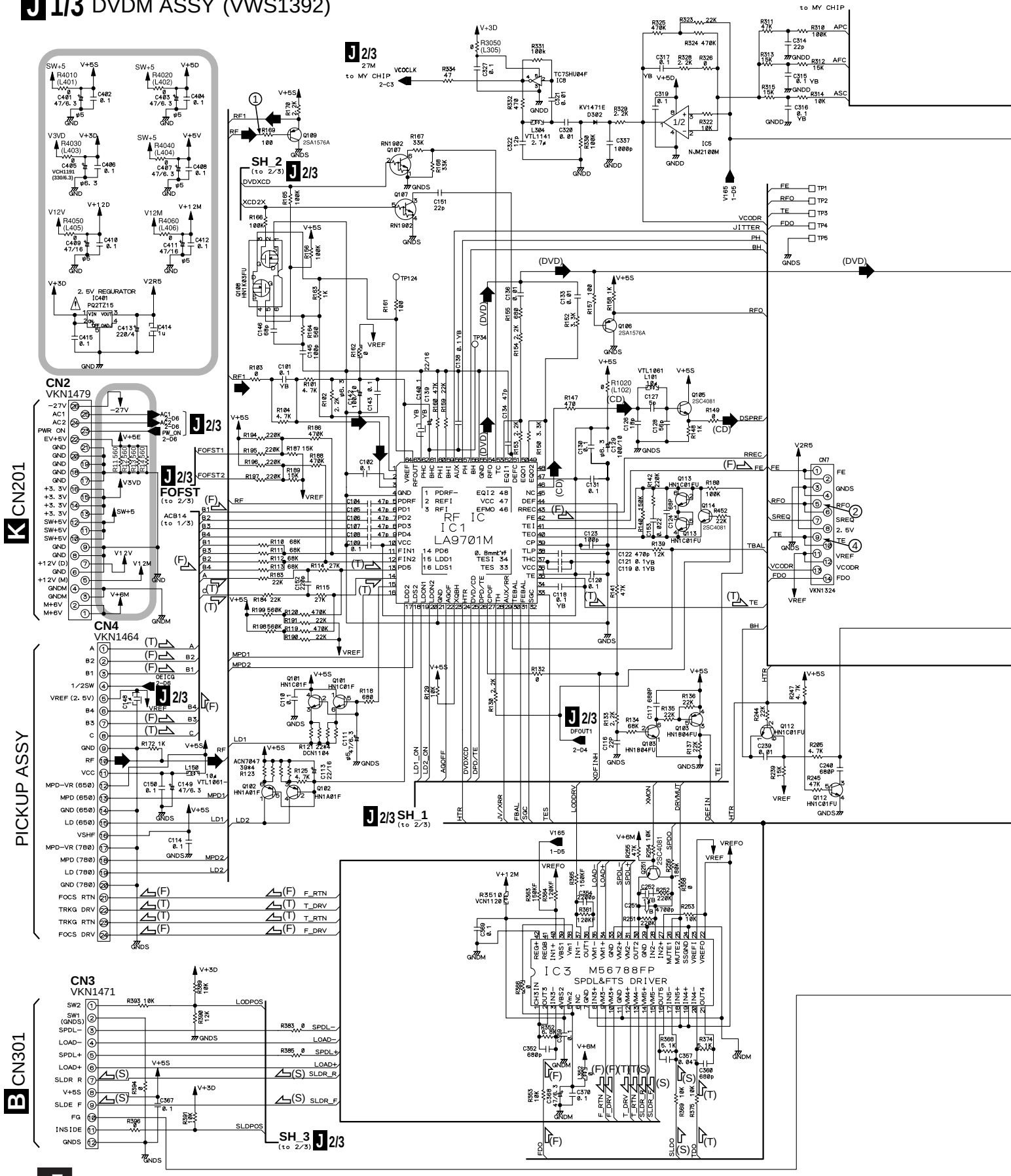
3.4 KRJB ASSY


CN501
CN60
CN101
CN70
CN401
CN4020
IC501 LA7135M
IC451 TC74HC157AF
IC401 TC9409BF-001
IC901 TC74HCT7007AF
IC301 PCM1716E
IC302 TC7WU04F
Except RD/RA type
RD/RA type only
V+5
V+8V
V+12
V-8
GNDV
GNDD
GNDA

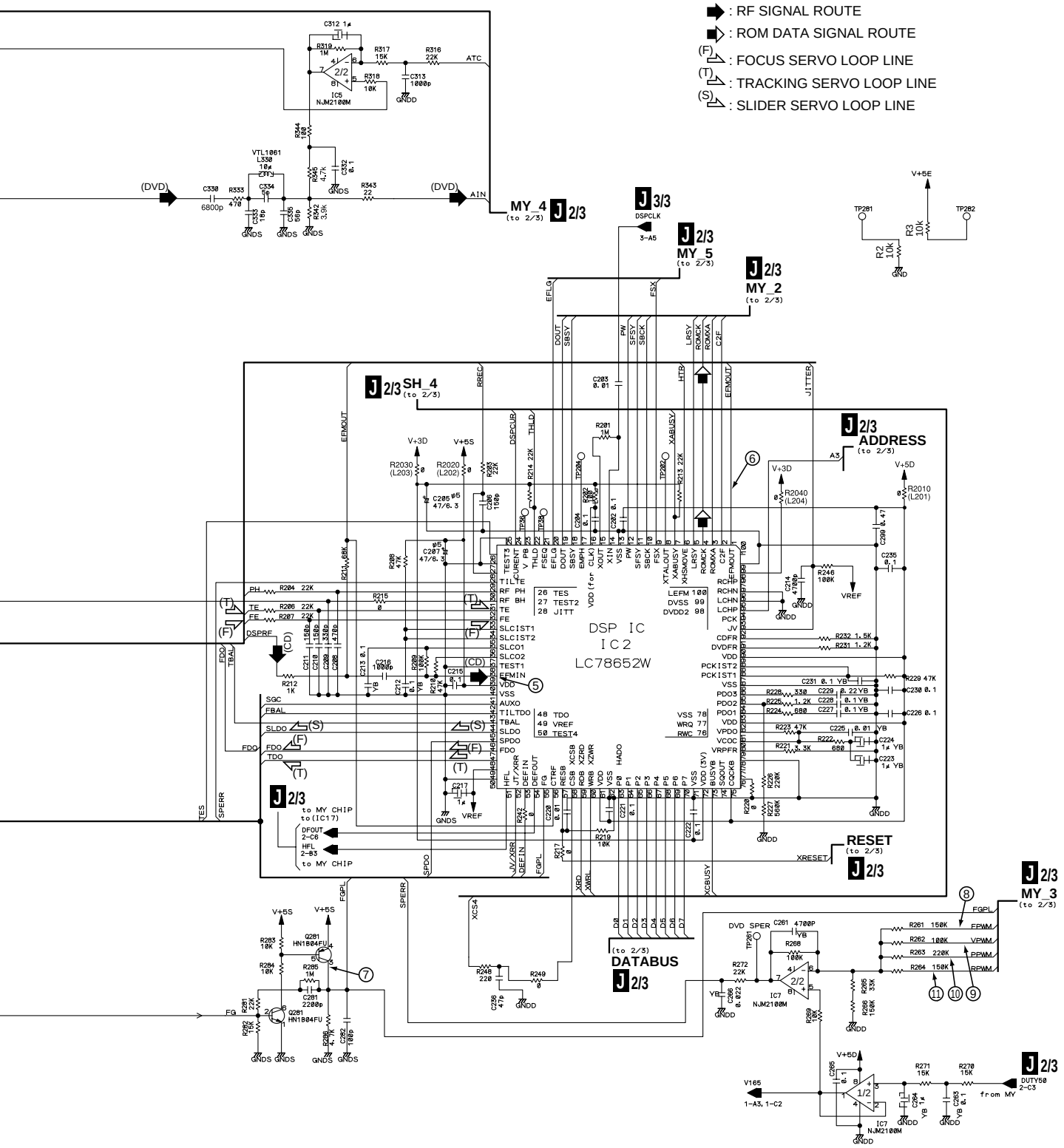

KRJB ASSY
(VWV1672: RL, RAMXQ, RL/RD)
(VWV1704: RD/RA)
RD/RA type only
Except RD/RA type
: AUDIO SIGNAL ROUTE
(COM) : COMPOSITE VIDEO SIGNAL ROUTE
(Y) : Y SIGNAL ROUTE
(C) : C SIGNAL ROUTE
NOTE: ✱✱✱ MARK. STANDBY

3.5 DVDM ASSY(1/3)

J 1/3 DVDM ASSY (VWS1392)

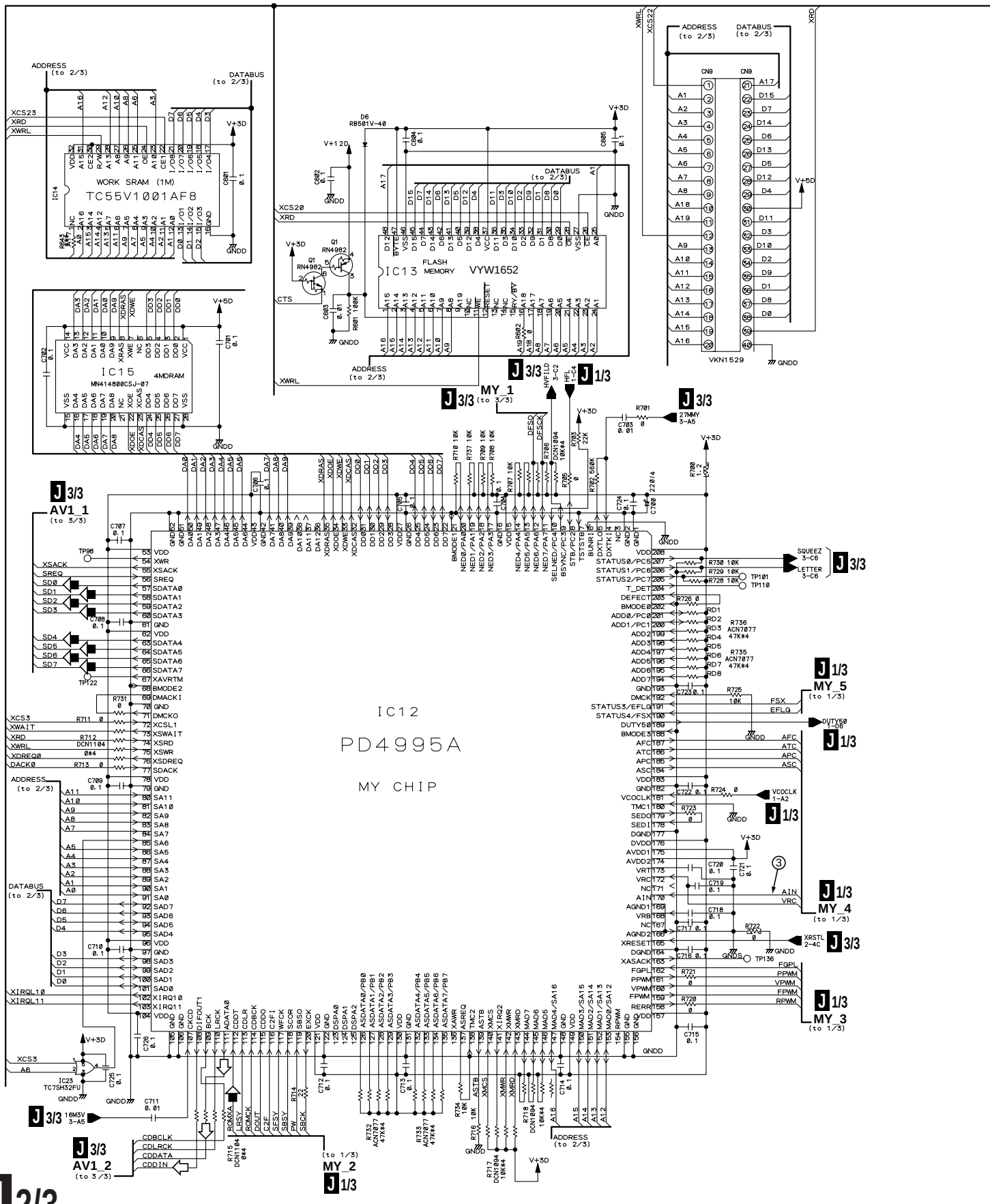


: The power supply is shown with the marked box.



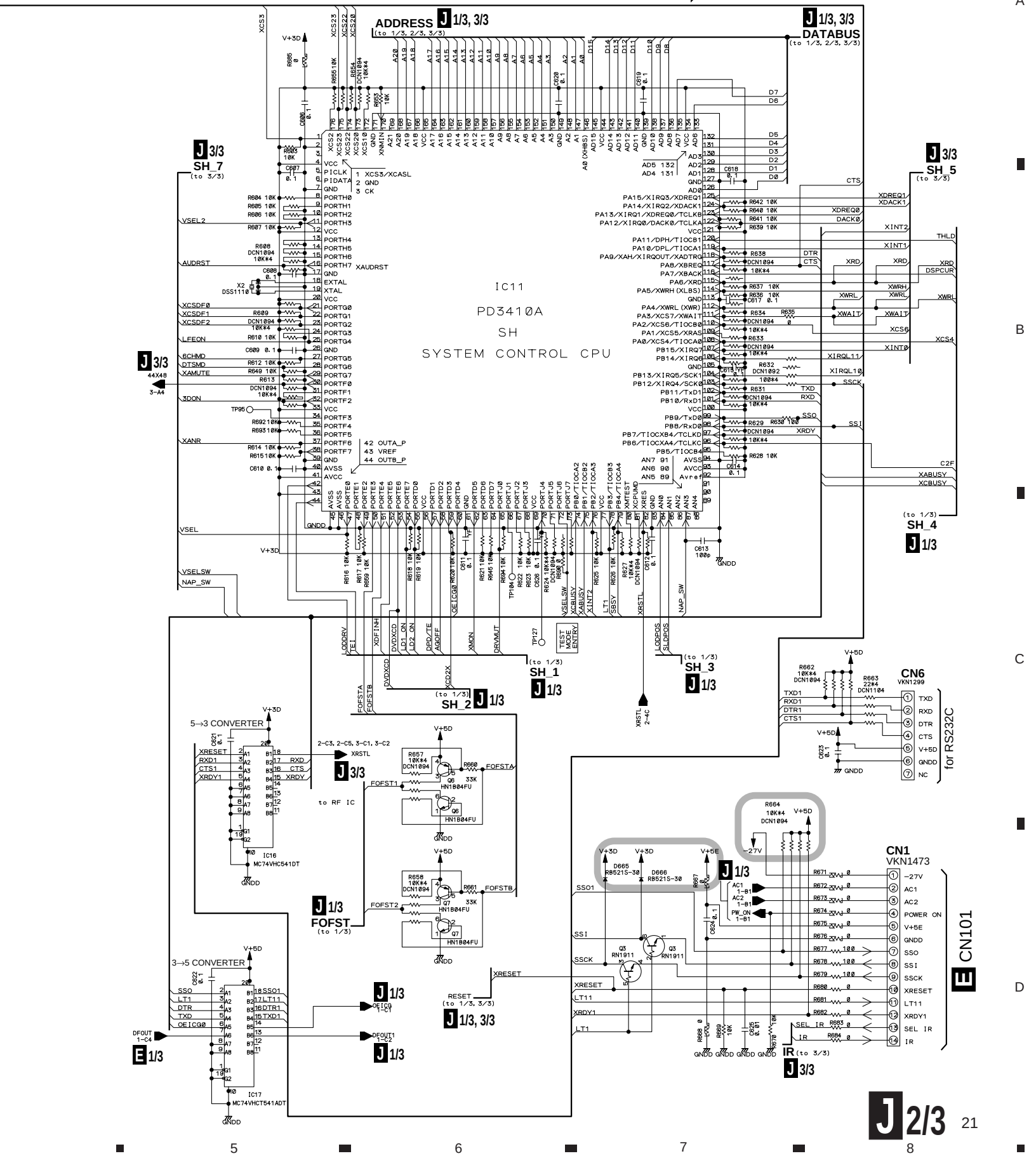
3.6 DVDM ASSY(2/3)

J 2/3 DVDM ASSY (VWS1392)



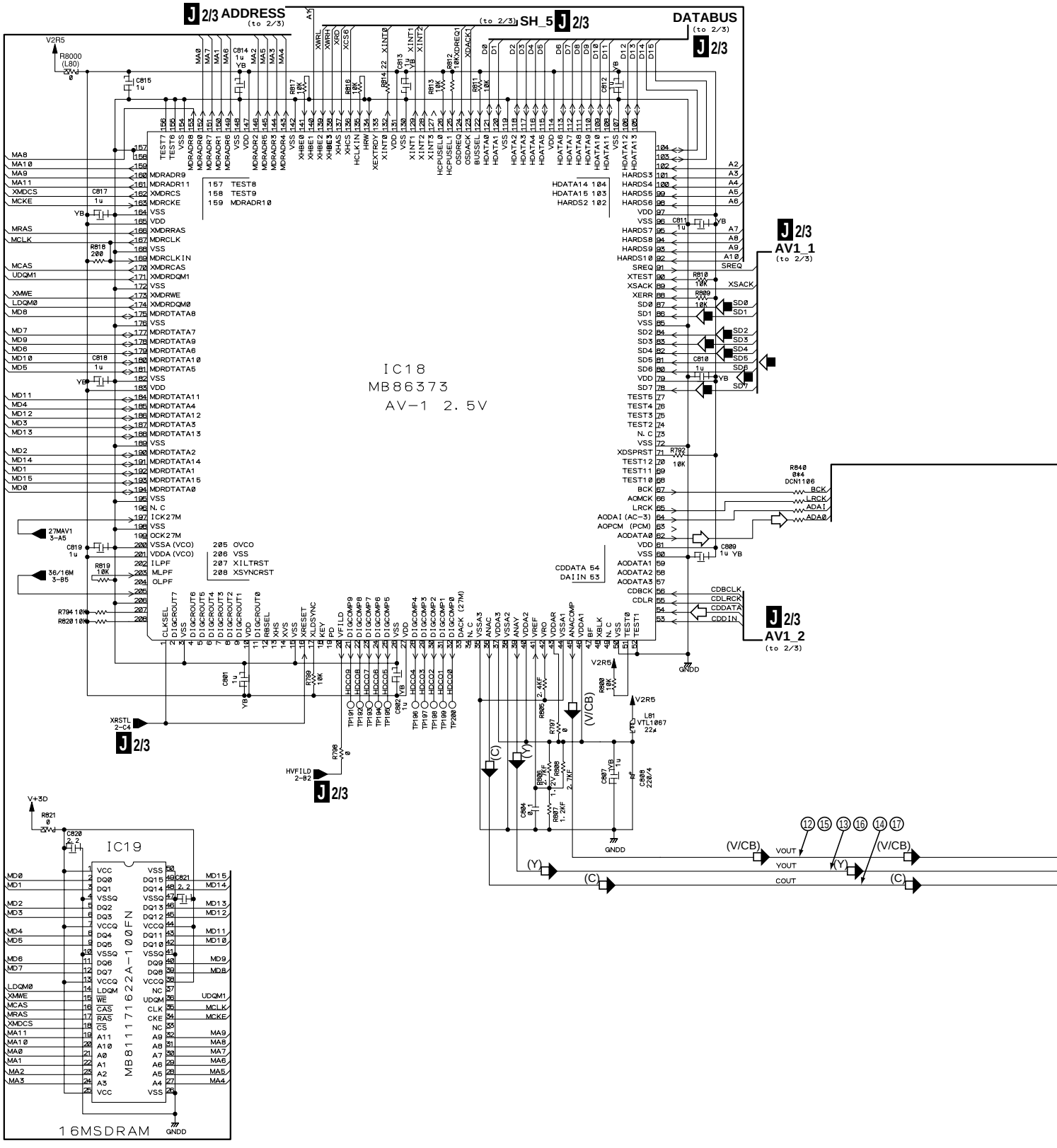
: The power supply is shown with the marked box.

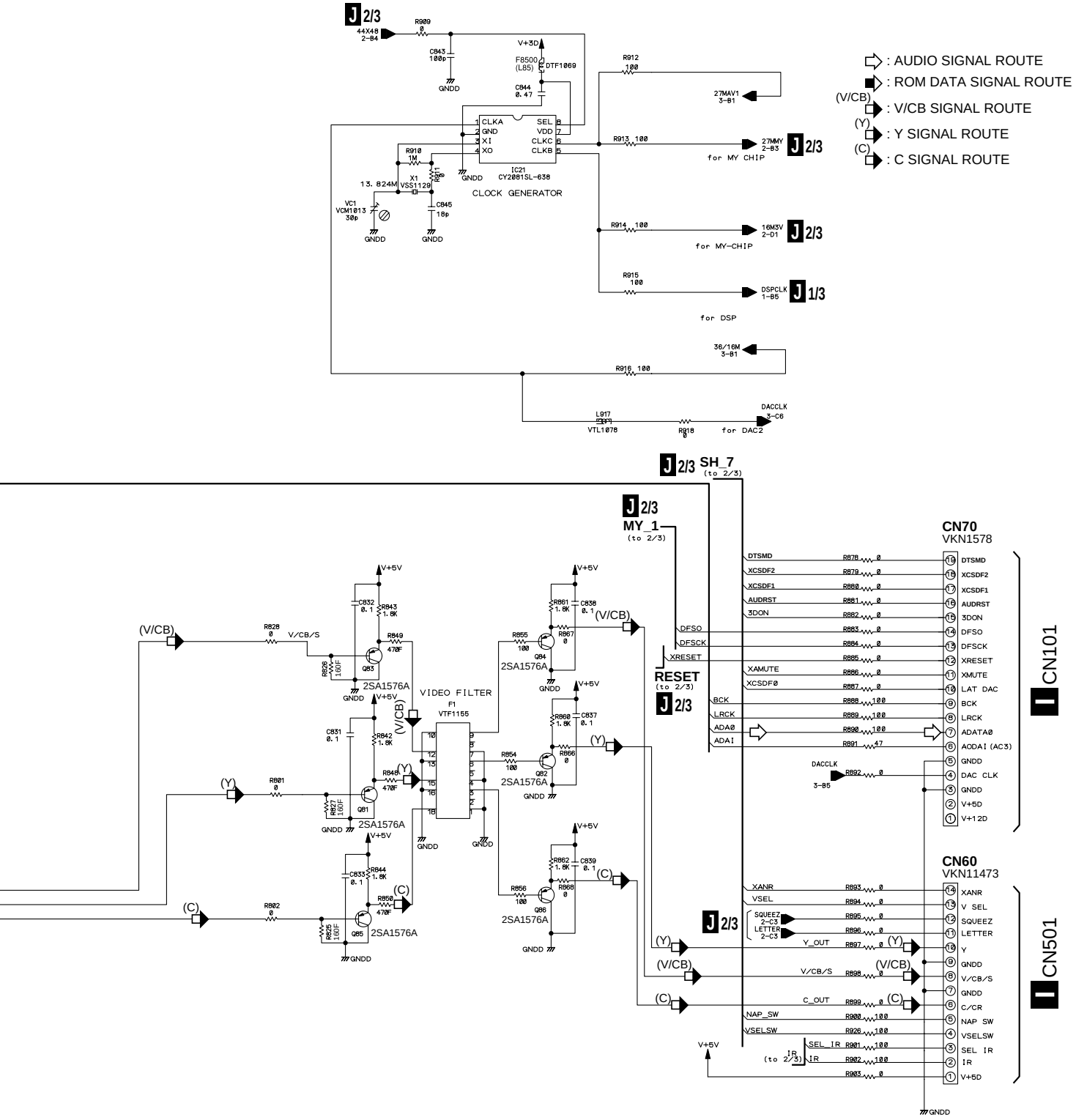
: ROM DATA SIGNAL ROUTE
: AUDIO SIGNAL ROUTE



3.7 DVDM ASSY(3/3)

J 3/3 DVDM ASSY (VWS1392)

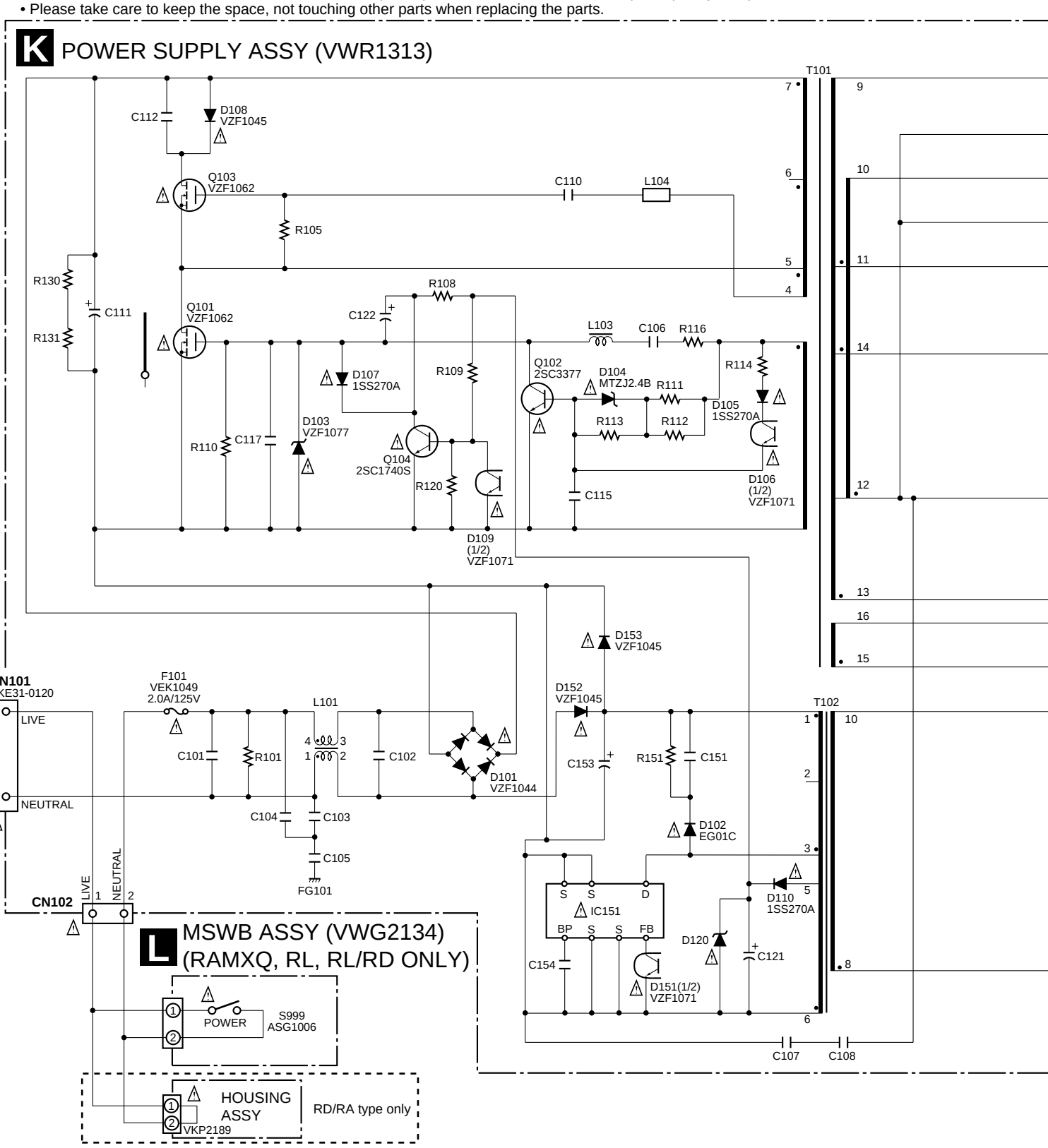



: AUDIO SIGNAL ROUTE
: ROM DATA SIGNAL ROUTE
(V/CB) : V/CB SIGNAL ROUTE
(Y) : Y SIGNAL ROUTE
(C) : C SIGNAL ROUTE
CLOCK GENERATOR
IC21 CY2001SL-638
13.824M
for MY CHIP
for MY-CHIP
for DSP
for DAC2
VIDEO FILTER
F1 VTF1155
2SA1576A
RESET
MY_1
SH_7
CN70 VKN1578
CN60 VKN11473
CN101
CN501

3.8 POWER SUPPLY and MSWB ASSYS

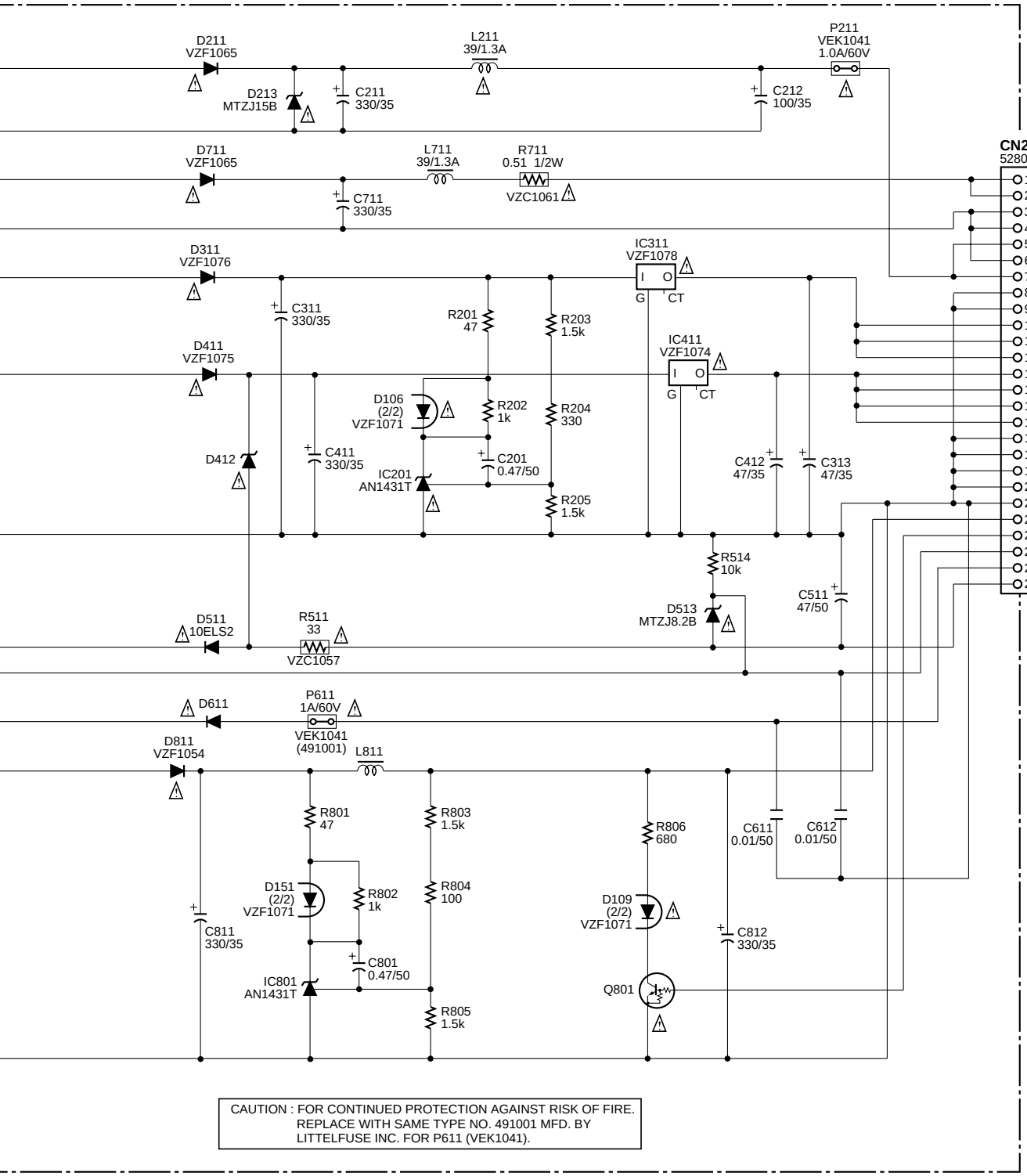
《 NOTE OF SPARE PARTS IN POWER SUPPLY (SYPS) ASSY 》

- In case of repairing, use the described parts only to prevent an accident.
- Please write the red √ mark on the board when the primary section of POWER SUPPLY (SYPS) Assy is repaired.
- Please take care to keep the space, not touching other parts when replacing the parts.



• NOTE FOR FUSE REPLACEMENT

CAUTION - FOR CONTINUED PROTECTION AGAINST RISK OF FIRE.
REPLACE WITH SAME TYPE AND RATINGS ONLY.



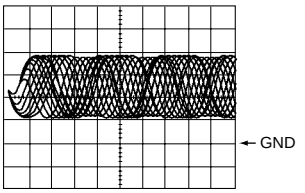
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE.
REPLACE WITH SAME TYPE NO. 491001 MFD. BY
LITTELFUSE INC. FOR P611 (VEK1041).

WAVEFORMS

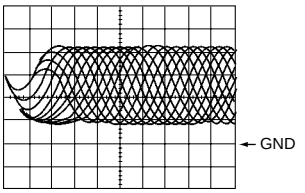
Note : The encircled numbers denote measuring point in the schematic diagram.

Measurement condition : No. 1 to 4 and 6 to 11 : Disc MA1, Title 1-chp 1
No. 5 : CD, ABEX-784 Track 1
No. 12 to 14 : MJK1, Title 1-chp 4
No. 15 to 17 : MJK1, Title 1-chp 5

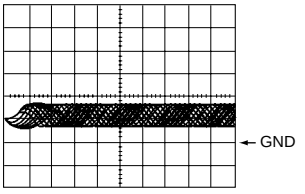
1 **Foot of R169 (RF)**
V: 100mV/div. H: 0.2µsec/div.



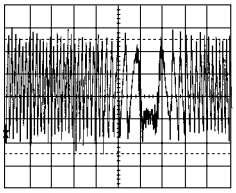
2 **CN7 - pin 5, 6 (RFO)**
V: 500mV/div. H: 0.1µsec/div.



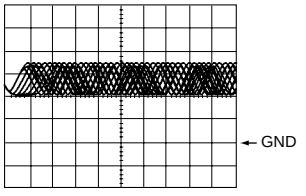
3 **IC12 - pin 70 (MY CHIP input)**
V: 1V/div. H: 0.2µsec/div.



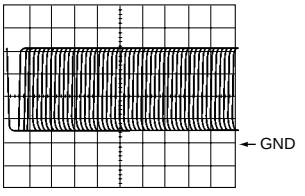
4 **CN7 - pin 9, 10 (Tracking Error) (AI-Inner Tracking Off)**
V: 500mV/div. H: 2msec/div.



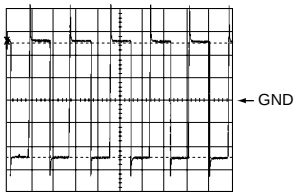
5 **IC201 - pin 39 (EFM before slice)**
V: 1V/div. H: 1µsec/div.



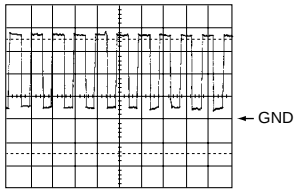
6 **IC201 - pin 1 (EFM)**
V: 1V/div. H: 0.2µsec/div.



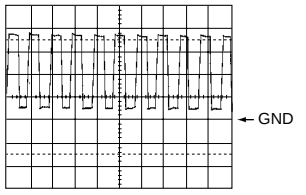
7 **Q281 - Collector (FG)**
V: 1V/div. H: 5msec/div.



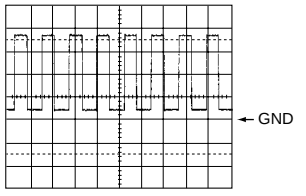
8 **Foot of R261 (FPWM)**
V: 1V/div. H: 5msec/div.



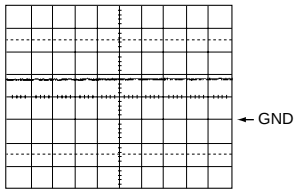
9 **Foot of R262 (VPWM)**
V: 1V/div. H: 5msec/div.



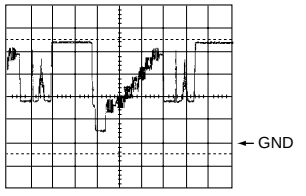
10 **Foot of R263 (PPWM)**
V: 1V/div. H: 5msec/div.



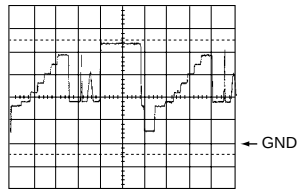
11 **Foot of R264 (RPWM)**
V: 1V/div. H: 5msec/div.



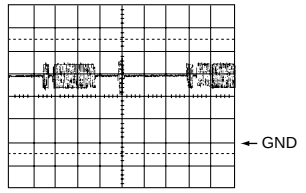
12 **IC18 - pin 45 (Composite Video output)**
V: 2V/div. H: 1msec/div.



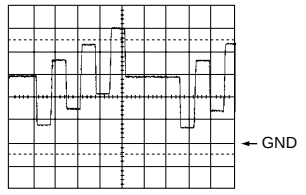
13 **IC18 - pin 39 (Y output)**
V: 0.2V/div. H: 5msec/div.



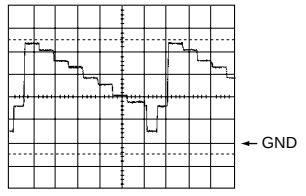
14 **IC18 - pin 6 (C output)**
V: 0.2V/div. H: 5msec/div.



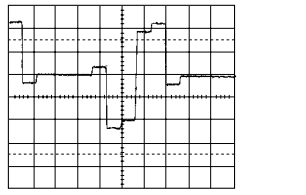
15 **IC18 - pin 45 (C_B output when selecting color difference output)**
V: 0.2V/div. H: 5msec/div.



16 **IC18 - pin 39 (Y output when selecting color difference output)**
V: 0.2V/div. H: 5msec/div.



17 **IC18 - pin 36 (C_R output when selecting color difference output)**
V: 2V/div. H: 5msec/div.



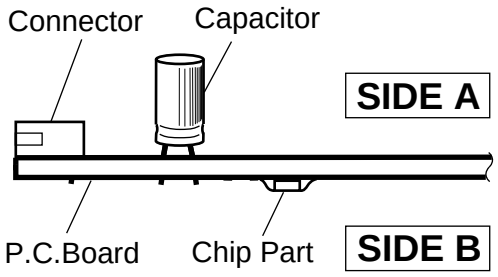
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

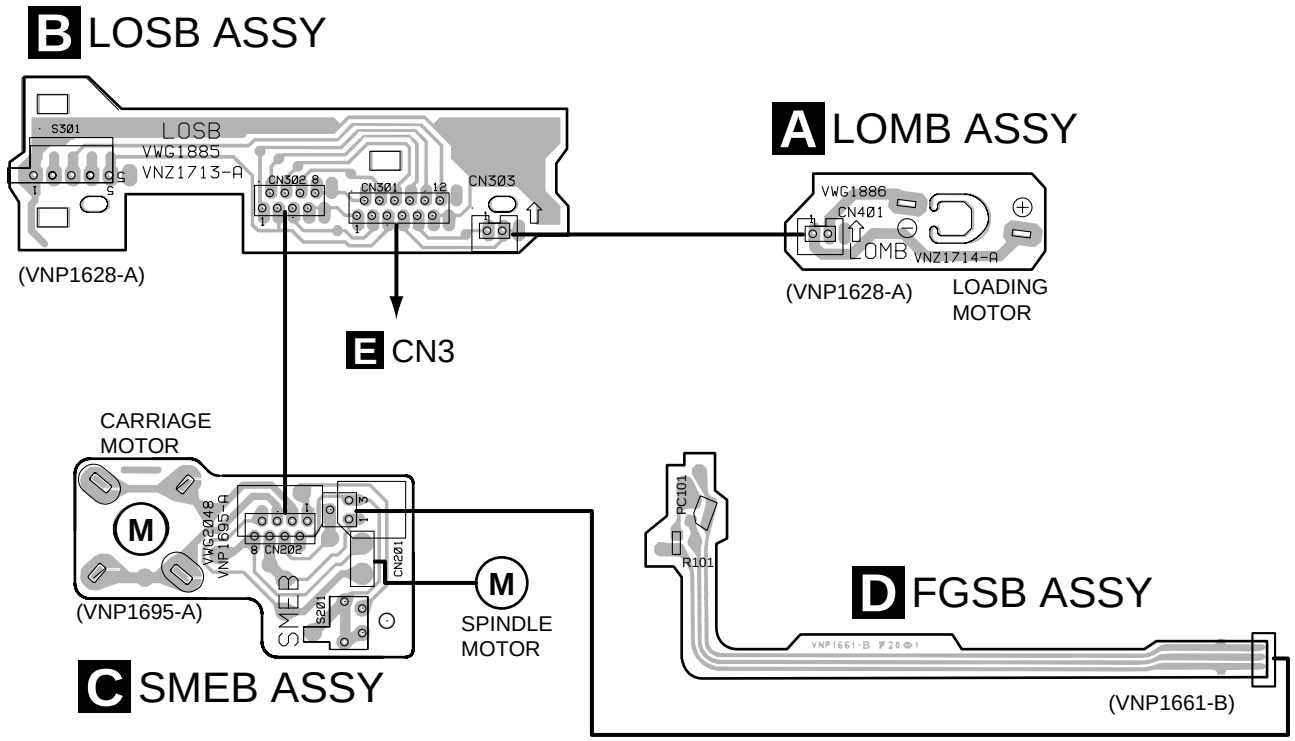
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
		3-terminal regulator

3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.



4.1 LOMB, LOSB, SMEB and FGSB ASSYS

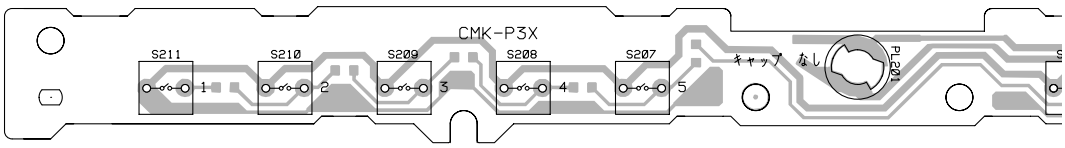


SIDE A

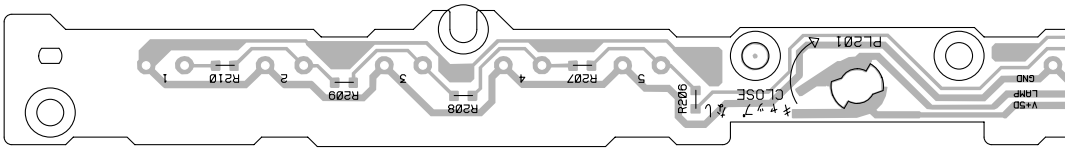
4.2 FLKY and KYLB ASSYS

F KYLB ASSY

SIDE A

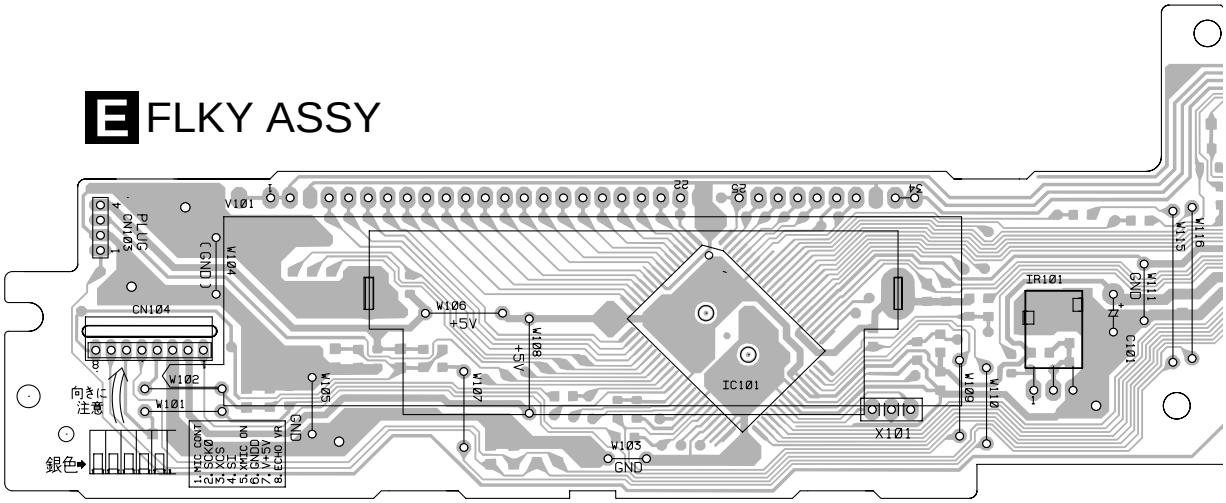


SIDE B

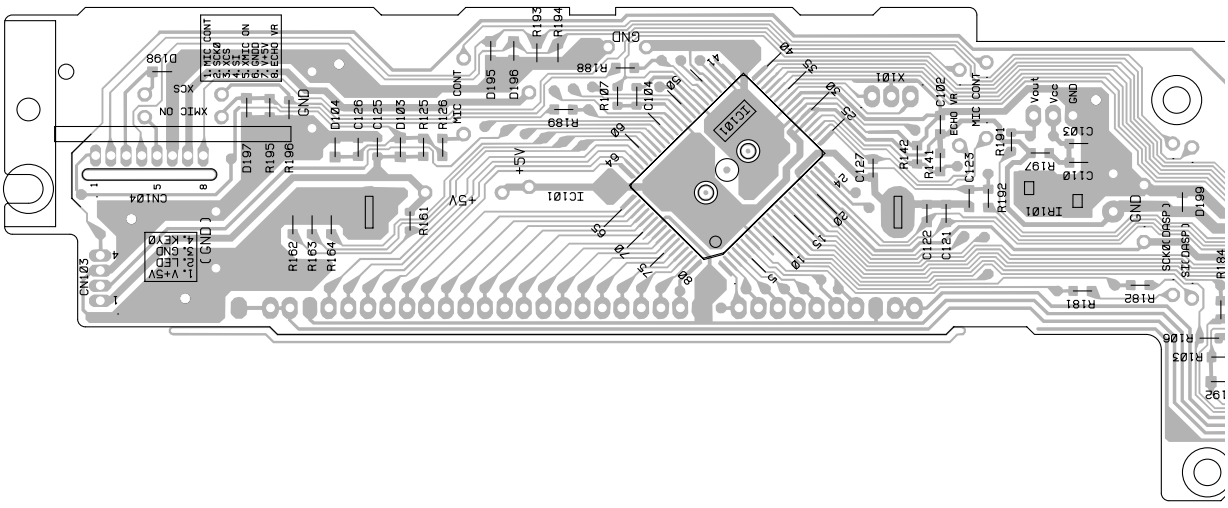


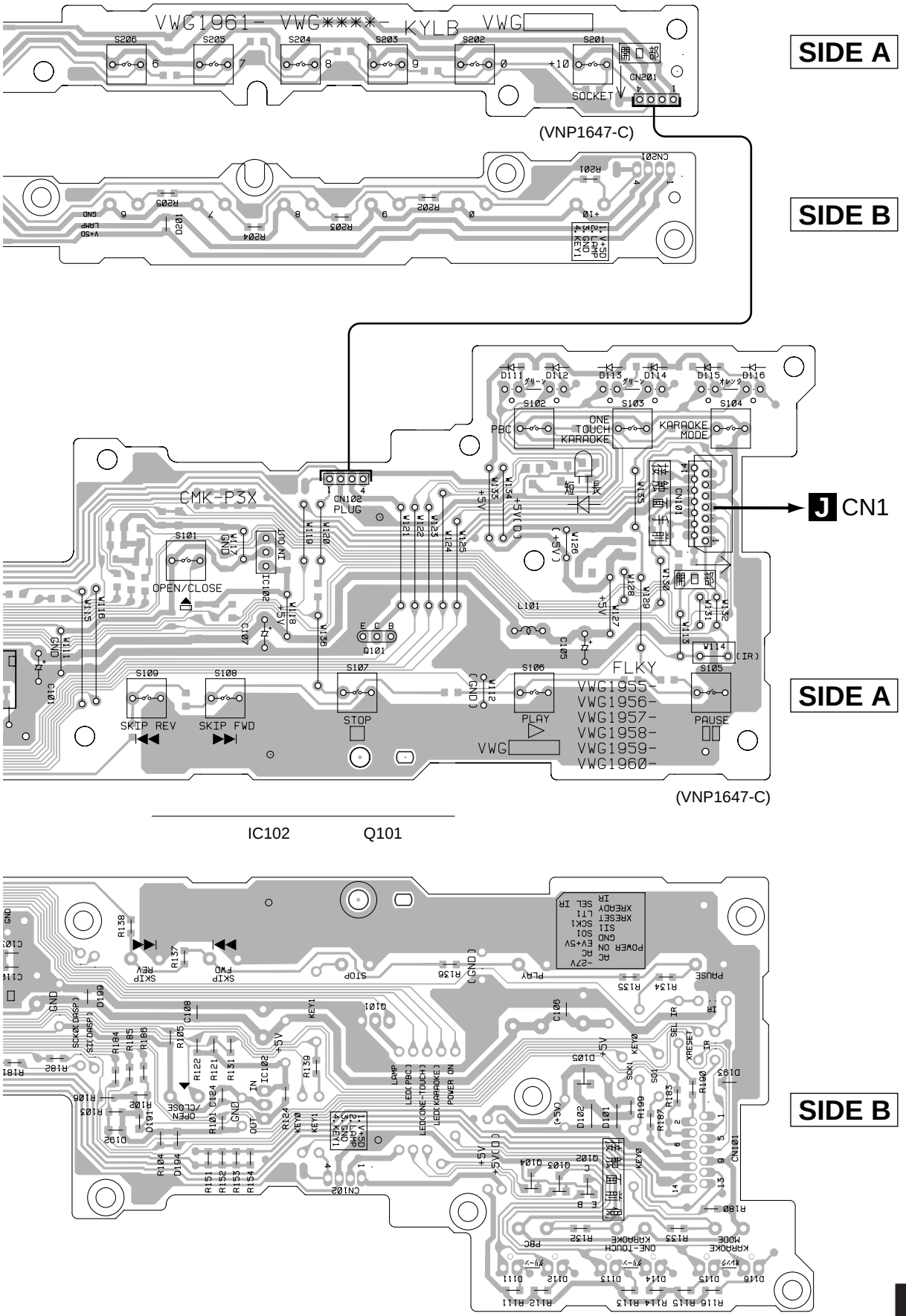
E FLKY ASSY

SIDE A



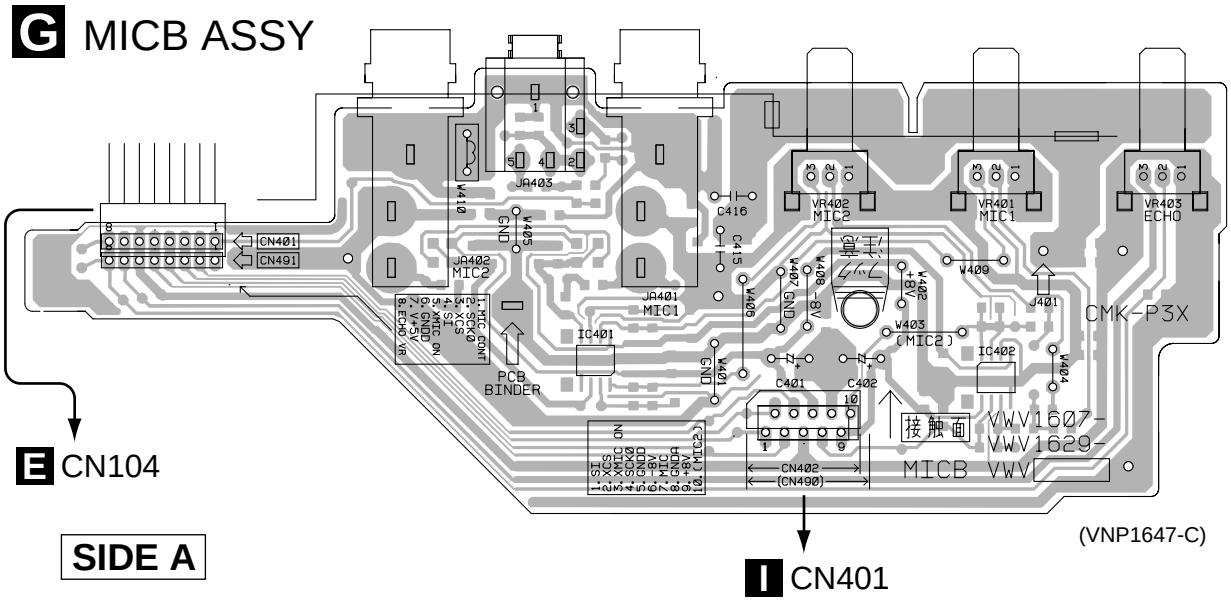
SIDE B



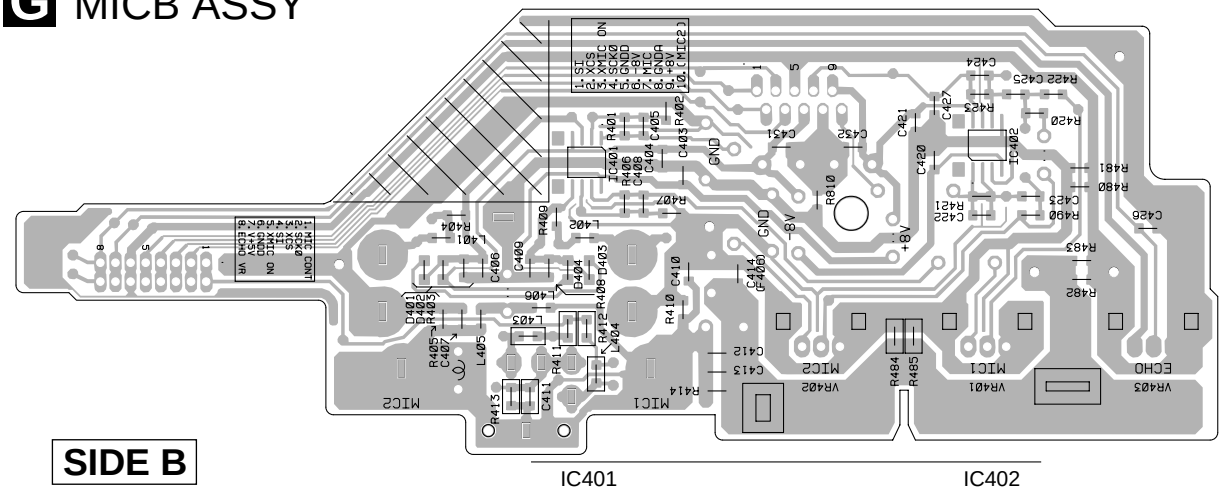

SIDE A
SIDE B
SIDE A
SIDE B
(VNP1647-C)
(VNP1647-C)
J CN1
IC102
Q101
CMK-P3X
OPEN/CLOSE
SKIP REV
SKIP FWD
STOP
PLAY
PAUSE
PBC
ONE TOUCH KARAOKE
KARAOKE MODE
FLKY
VWG1955-
VWG1956-
VWG1957-
VWG1958-
VWG1959-
VWG1960-
VWG1961- VWG****- KYLB VWG

4.3 MICB ASSY

G MICB ASSY

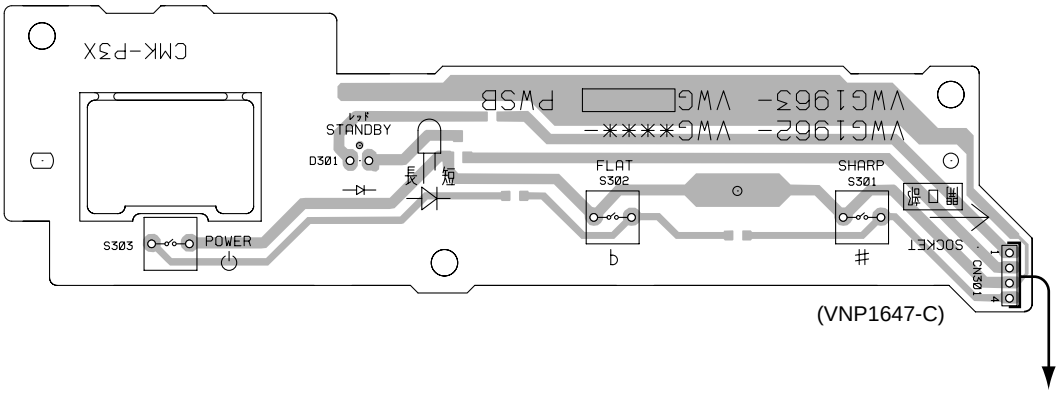


G MICB ASSY



4.4 PWSB ASSY

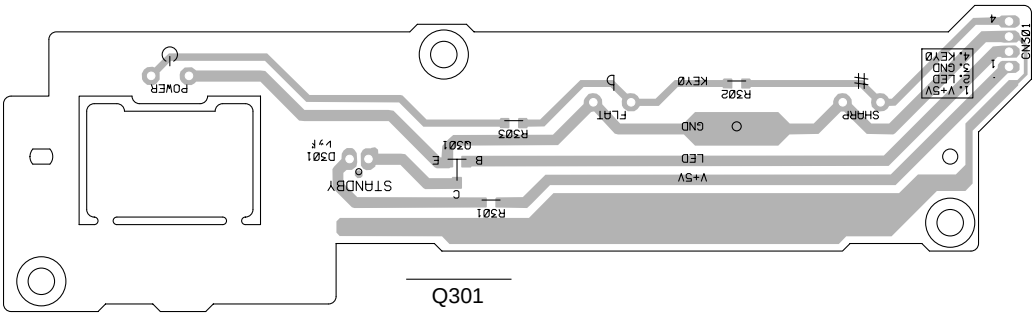
H PWSB ASSY



E CN103

SIDE A

H PWSB ASSY

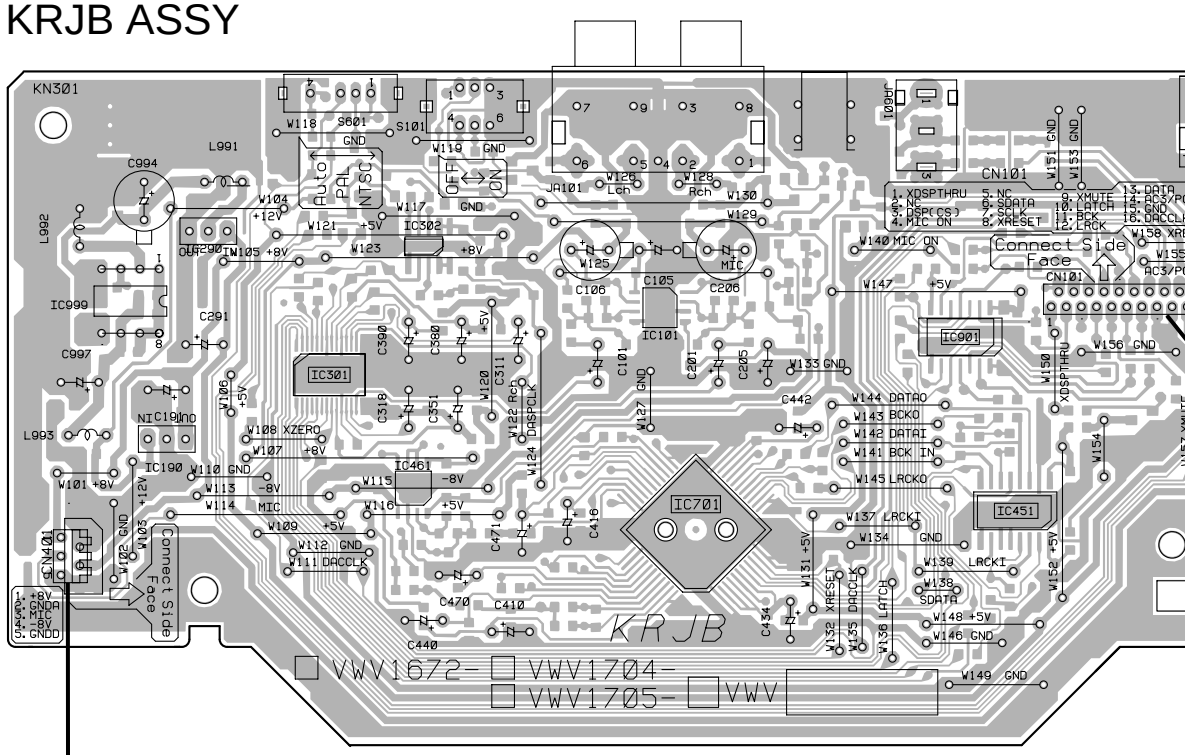


SIDE B

4.5 KRJB ASSY

I KRJB ASSY

SIDE A



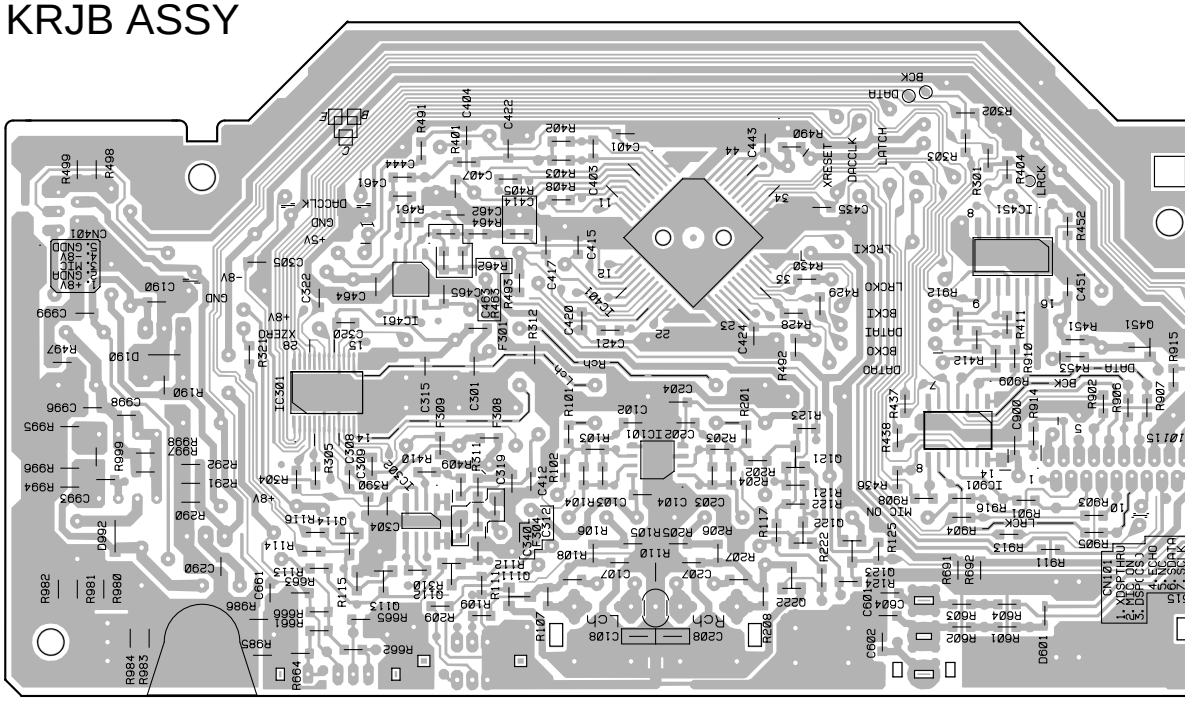
IC999
IC190

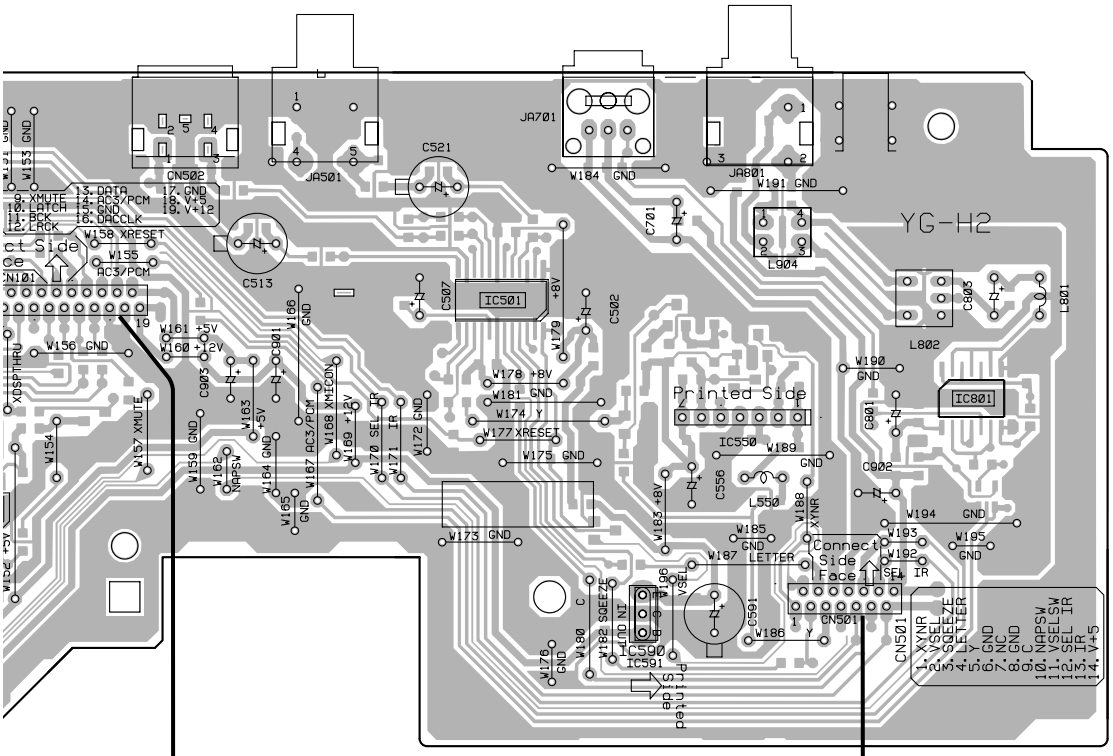
G CN4020

J

I KRJB ASSY

SIDE B



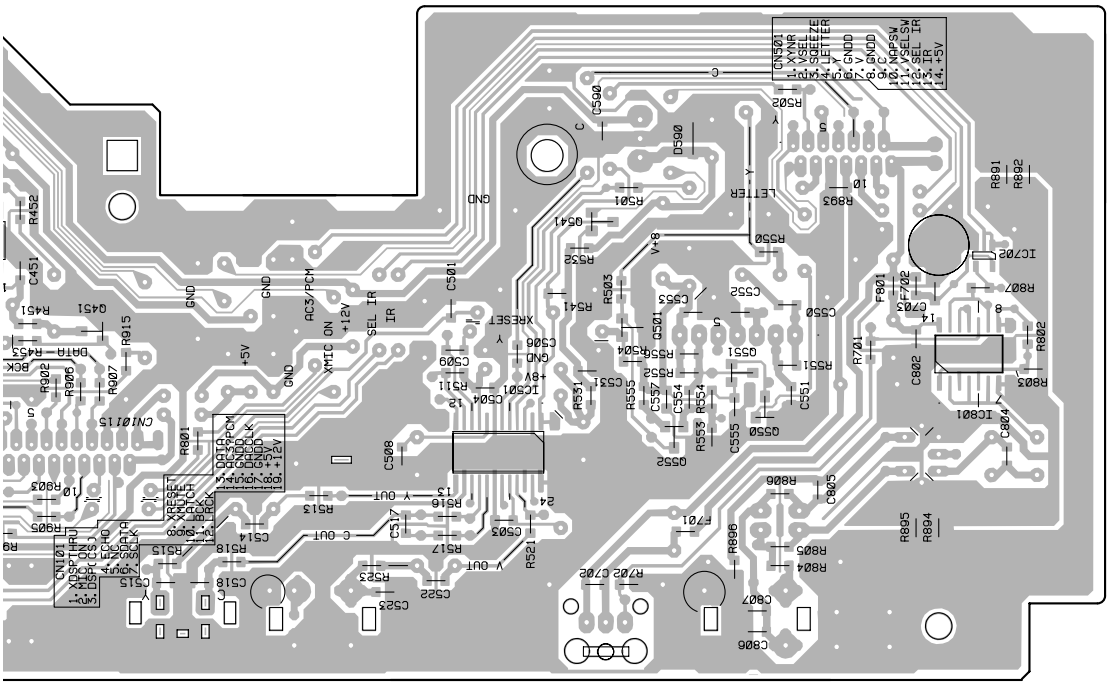


IC550

J CN70

J CN60

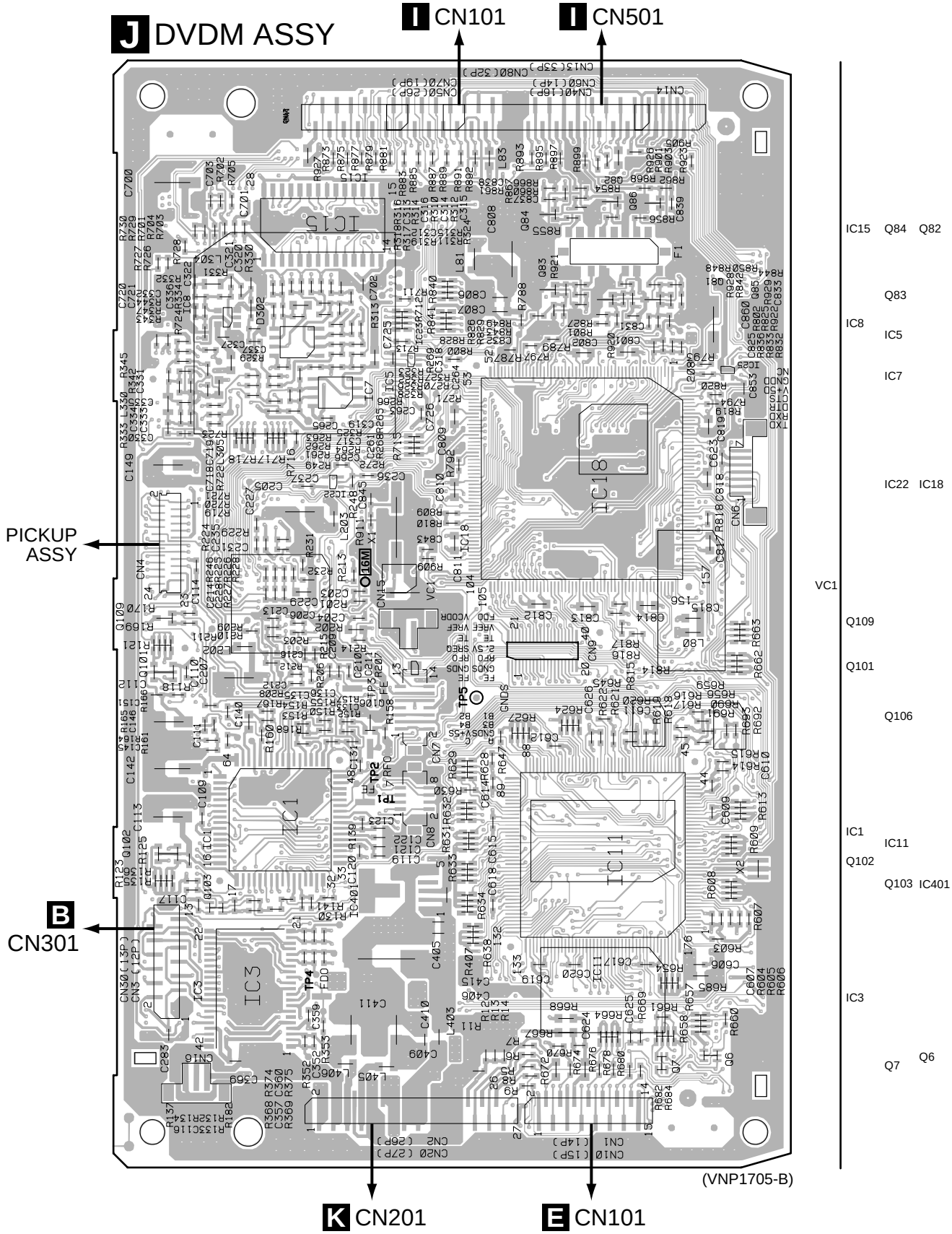
SIDE A



SIDE B

4.6 DVDM ASSY

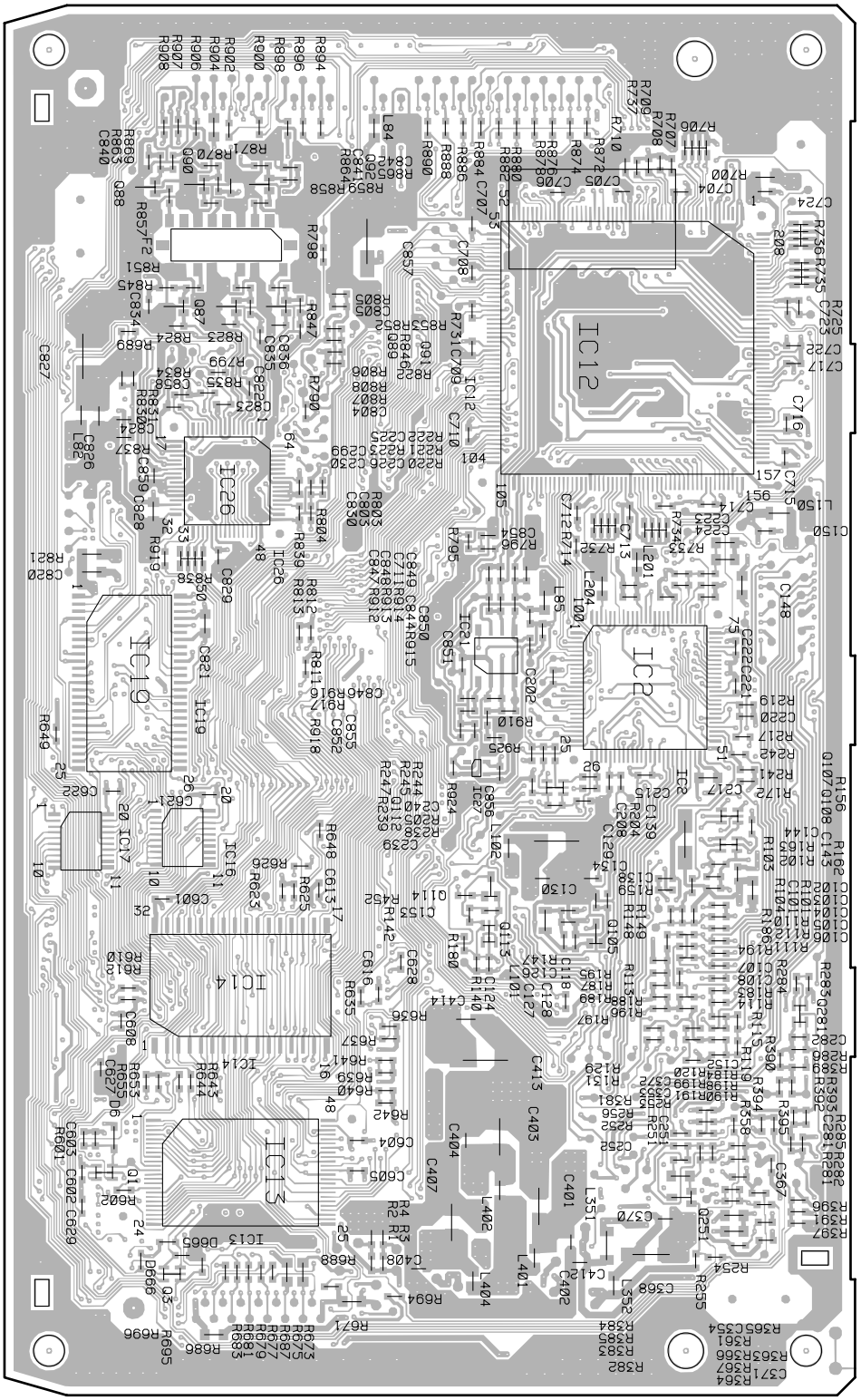
• This PCB is a four-layered board.



SIDE A

• This PCB is a four-layered board.

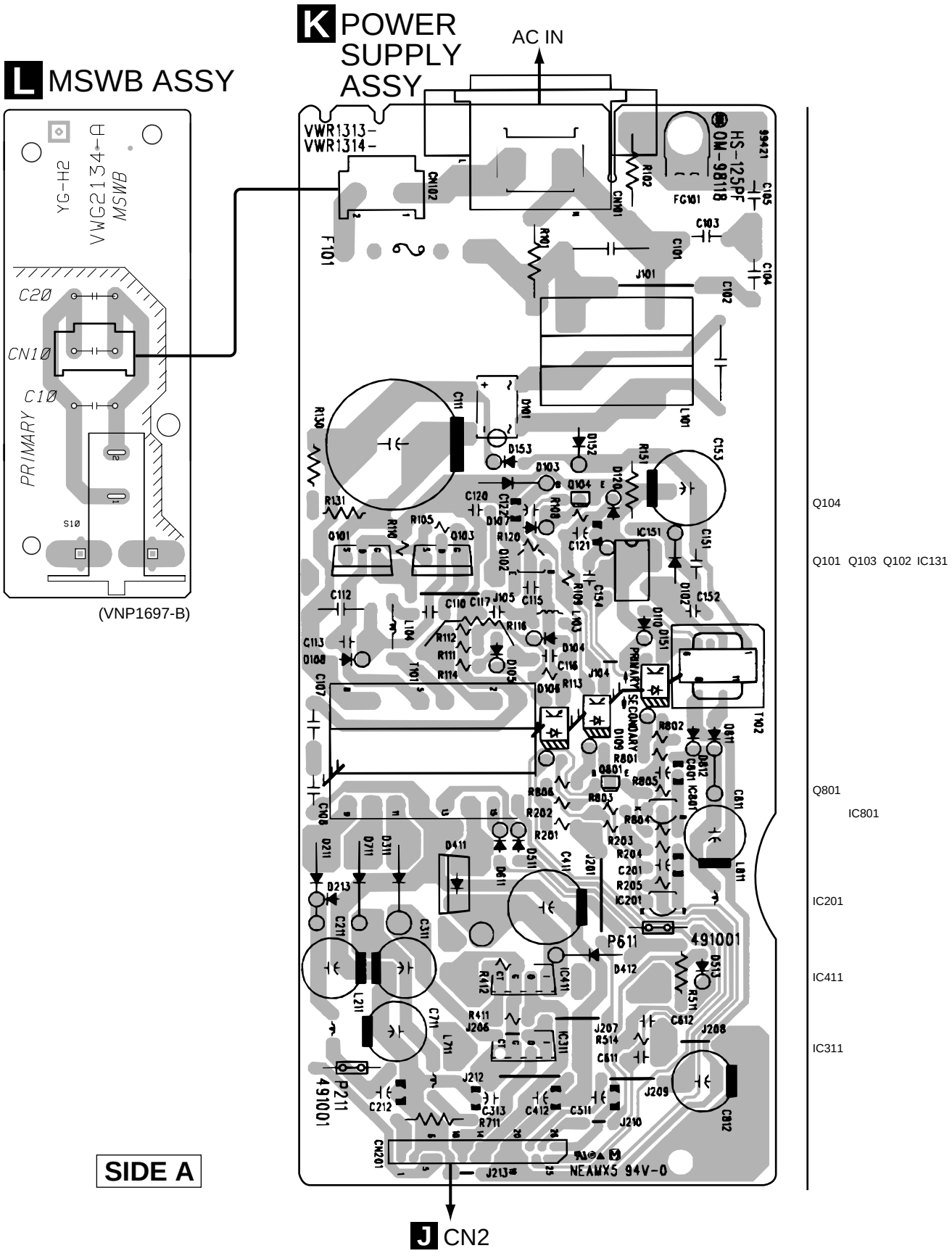
J DVDM ASSY



(VNP1705-B)

SIDE B

4.7 POWER SUPPLY and MSWB ASSYS



5. PCB PARTS LIST

NOTES: ●*Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
●*The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
●*When ordering resistors, first convert resistance values into code form as shown in the following examples.*
Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).
560 Ω → 56 × 10¹ → 561 ..... RD1/4PU 5 6 1 J
47k Ω → 47 × 10³ → 473 ..... RD1/4PU 4 7 3 J
0.5 Ω → R50 ..... RN2H R 5 0 K
1 Ω → 1R0 ..... RS1P 1 R 0 K
Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62k Ω → 562 × 10¹ → 5621 ..... RN1/4PC 5 6 2 1 F

5.1 LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol and Description	Part No.				Remarks
		DV-K102 /RL	DV-K102 /RAMXQ	DV-K102 /RD/RA	DV-K102 /RL/RD	
NSP	LOAB ASSY	VWM1798	VWM1798	VWM1798	VWM1798	
NSP	├ LOMB ASSY	VWG1886	VWG1886	VWG1886	VWG1886	
NSP	└ LOSB ASSY	VWG1885	VWG1885	VWG1885	VWG1885	
NSP	TRAVERSE MECHANISM ASSY	VWT1161	VWT1161	VWT1161	VWT1161	
NSP	├ SMEB ASSY	VWG2048	VWG2048	VWG2048	VWG2048	
NSP	└ FGSB ASSY	VWG2009	VWG2009	VWG2009	VWG2009	
NSP	FRPB ASSY	VWM1910	VWM1938	VWM1939	VWM1910	
	├ FLKY ASSY	VWG2045	VWG2077	VWG2078	VWG2045	
NSP	├ PWSB ASSY	VWG2047	VWG2047	VWG2079	VWG2047	
NSP	├ KYLB ASSY	VWG2046	VWG2046	VWG2046	VWG2046	
	└ MICB ASSY	VWV1668	VWV1668	VWV1668	VWV1668	
	KRJB ASSY	VWM1919	VWM1919	Not used	VWM1919	
	├ KRJB ASSY	VWV1672	VWV1672	VWV1704	VWV1672	
NSP	└ MSWB ASSY	VWG2134	VWG2134	Not used	VWG2134	
	DVDM ASSY	VWS1392	VWS1392	VWS1392	VWS1392	
⚠	POWER SUPPLY ASSY	VWR1313	VWR1313	VWR1313	VWR1313	

■ CONTRAST OF PCB ASSEMBLIES

E FLKY ASSY

VWG2045, VWG2077 and VWG2078 are constructed the same except for the following :

Mark	Symbol and Description	Part No.			Remarks
		VWG2045	VWG2077	VWG2078	
	R141	RS1/10S683J	RS1/10S272J	RS1/10S683J	
	R142	RS1/10S273J	RS1/10S163J	RS1/10S273J	
	R161	RS1/10S0R0J	Not used	Not used	
	R162	Not used	RS1/10S0R0J	RS1/10S0R0J	
	(FL HOLDER)	VNF1087	VNF1096	VNF1087	

H PWSB ASSY

VWG2047 and VWG2079 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		VWG2047	VWG2079	
	S303	Not used	ASG7013	

I KRJB ASSY

VWV1672 and VWV1704 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		VWV1672	VWV1704	
	F531, F702, F801 R531, R9702, R9801	VTF1096 Not used	Not used RS1/10S0R0J	

5.2 PARTS LIST FOR DV-K102/RL

Mark	No.	Description	Part No.
A LOMB ASSY			
OTHERS			
	CN401	KR CONNECTOR	B2B-PH-K-S
B LOSB ASSY			
SWITCHES AND RELAYS			
	S301		VSK1011
OTHERS			
	CN303	KR CONNECTOR	B2B-PH-K-S
	CN302	8P FFC CONNECTOR	VKN1268
	CN301	12P FFC CONNECTOR	VKN1272
C SMEB ASSY			
SWITCHES AND RELAYS			
	S201		DSG1016
OTHERS			
	CN201	3P FFC CONNECTOR	52044-0345
	CN202	8P FFC CONNECTOR	VKN1212
D FGSB ASSY			
SEMICONDUCTORS			
	PC101		TLP910
RESISTORS			
	All Resistors		RS1/10S□□□ J
E FLKY ASSY			
SEMICONDUCTORS			
	IC101		PE5114A
	IC102		S-806D
	Q101		DTD113ES
	Q102–Q104		PDTC124EK
	D115, D116		SLR-343DC
	D111–D114		SLR-343PC
SWITCHES AND RELAYS			
	S101–S109		ASG7013
CAPACITORS			
	C101		CEJA470M10
	C103		CKSQYF103Z50
	C102, C123		CKSQYF104Z50
RESISTORS			
	All Resistors		RS1/10S□□□ J
OTHERS			
	CN102, CN103	4P FJ CONNECTOR	04P-FJ
	CN104	8P CONNECTOR	BTMK08S-1S
		REMOTE RECIVER UNIT	GP1U28X
	V101	FL TUBE	VAW1046
		SPACER	VEC1599
	CN101	14P CONNECTOR	VKN1274
		FL HOLDER	VNF1087
	X101	CERAMIC RESONATOR (5MHz)	VSS1142
F KYLB ASSY			
SEMICONDUCTORS			
	D201		MA111
SWITCHES AND RELAYS			
	S201–S211		ASG7013
RESISTORS			
	All Resistors		RS1/10S□□□ J
OTHERS			
	CN201	4P FJ CONNECTOR	04R-FJ
	PL201	LAMP (DVD ILUM.)	VEL1022
G MICB ASSY			
SEMICONDUCTORS			
	IC402		BA4560F
	IC401		NJM2068M
COILS AND FILTERS			
	F405		VTF1096
CAPACITORS			
	C424		CCSQSL271J50
	C401, C402		CEJA470M10
	C425		CKSQYB104K25
	C405, C408		CKSQYB122K50
	C406, C409		CKSQYB152K50
	C403, C404, C420, C421		CKSQYF103Z50
	C412		CKSQYF104Z50
RESISTORS			
	VR401–VR403 (10kΩ)		VCS1040
	Other Resistors		RS1/10S□□□ J

Mark	No.	Description	Part No.
OTHERS			
	CN4020	5P FFC CONNECTOR	52045-0545
	CN401	8P CONNECTOR	BTMK08P-1R
	JA403	HEADPHONE JACK	RKN1006
	JA401, JA402	MIC JACK	VKN1147
		SNAP PLATE	VNE1102
		JACK HOLDER	VNE2150

H PWSB ASSY

SEMICONDUCTORS			
	Q301		PDTC124EK
	D301		SLR-343VC
SWITCHES AND RELAYS			
	S301, S302		ASG7013
RESISTORS			
	All Resistors		RS1/10S□□□ J
OTHERS			
	CN301	4P FJ CONNECTOR	04R-FJ

I KRJB ASSY

SEMICONDUCTORS			
	IC101		BA4560F
	IC999		IR3M03A
	IC501		LA7137M
	IC190		NJM78L08A
	IC590		NJM78M08FA
	IC290		NJM79L08A
	IC301		PCM1716E
	IC550		TA7302P
	IC451		TC74HC157AF
	IC901		TC74HCT7007AF
	IC801		TC74HCU04AF
	IC702		TC7SET08F
	IC302		TC7WU04F
	IC401		TC9409BF-001
	Q112, Q501, Q552		2PB709A
	Q113		2PD601A
	Q111, Q121, Q222		2SD2114K
	Q122, Q551		PDTA124EK
	Q114, Q123, Q451, Q541, Q550		PDTC124EK
	D601		1SS355
	D190, D992		EP10QY03
COILS AND FILTERS			
	L550		LAU470J-TA
	L991		LFA271J
	L993		LFA470J
	L802		PTL1003
	L801		RTF1167
	F531, F702, F801		VTF1096
	L992		VTL1118
SWITCHES AND RELAYS			
	S101		VSH1009
	S601		VSH1020

Mark	No.	Description	Part No.
CAPACITORS			
	C107, C207		CCSQCH331J50
	C550		CCSQCH390J50
	C103, C203		CCSQCH820J50
	C102, C202		CCSQCH911J50
	C410, C434, C440, C442		CEAT101M10
	C470, C471, C502, C507, C556		CEAT101M10
	C701, C801, C803, C902		CEAT101M10
	C994, C997		CEAT101M16
	C380		CEAT221M6R3
	C591		CEAT331M10
	C101, C105, C106, C201		CEAT470M10
	C205, C206, C311, C318		CEAT470M10
	C351, C390, C513, C521		CEAT471M6R3
	C104, C204, C308, C309, C315		CKSQYB103K50
	C320, C322, C340, C404, C407		CKSQYB103K50
	C421, C435, C551, C554, C661		CKSQYB103K50
	C804		CKSQYB103K50
	C444, C506, C509, C517		CKSQYB104K25
	C403		CKSQYB122K50
	C993		CKSQYB471K50
	C422		CKSQYB562K50
	C190, C290, C312, C401, C415		CKSQYF104Z25
	C417, C420, C424, C443, C451		CKSQYF104Z25
	C503, C504, C552, C553, C555		CKSQYF104Z25
	C557, C590, C602, C702, C703		CKSQYF104Z25
	C802, C806, C900, C999		CKSQYF104Z25
RESISTORS			
	R515, R518, R523		RN1/10SC62R0D
	R503		RN1/10SC68R0D
	R104, R204		RN1/10SE1302D
	R995		RN1/10SE1801D
	R999		RN1/10SE2200D
	R101, R201		RN1/10SE6201D
	Other Resistors		RS1/10S□□□ J
OTHERS			
	CN401	5P FFC CONNECTOR	52045-0545
	CN502	SOCKET	AKP7008
	JA701	OPTICAL LINK OUT	GP1F32T
	JA601	JACK	RKN1004
		PCB BINDER	VEF1040
	JA501	JACK	VKB1063
	JA801	JACK	VKB1077
	JA101	4P PIN JACK	VKB1128
	CN501	14P CONNECTOR	VKN1245
	CN101	19P FFC CONNECTOR	VKN1250
		SCREW PLATE	VNE1948
	KN301	EARTH METAL FITTING	VNF1084

Mark	No.	Description	Part No.
J	**DVDM ASSY**		
	SEMICONDUCTORS		
	IC21		CY2081SL-638
	IC1		LA9701M
	IC2		LC78652W
	IC3		M56788FP
	IC19		MB811171622A-100FN
	IC18		MB86373
	IC16		MC74VHC541DT
	IC17		MC74VHCT541ADT
	IC15		MN414800CSJ-07
	IC5, IC7		NJM2100M
	IC11		PD3410A
	IC12		PD4995A
⚠	IC401		PQ2TZ15
	IC14		TC55V1001AF8
	IC23		TC7SH32FU
	IC8		TC7SHU04F
	IC13		VYW1652
	Q106, Q109, Q81–Q86		2SA1576A
	Q105, Q114, Q251		2SC4081
	Q102		HN1A01F
	Q103, Q281, Q6, Q7		HN1B04FU
	Q101		HN1C01F
	Q112, Q113		HN1C01FU
	Q108		HN1K03FU
	Q107		RN1902
	Q3		RN1911
	Q1		RN4982
	D302		KV1471E
	D6		RB501V-40
	D665, D666		RB521S-30
	COILS AND FILTERS		
	F8500	CHIP BEAD	DTF1069
	F1	VIDEO FILTER	VTF1155
	L101, L150, L330	CHIP COIL (10μH)	VTL1061
	L81	CHIP COIL (22μH)	VTL1067
	L917	CHIP BEADS	VTL1078
	L304	CHIP COIL (2.7μH)	VTL1141
	CAPACITORS		
	C123, C145, C282, C613, C843		CCSRCH101J50
	C322		CCSRCH120J50
	C206, C210, C211		CCSRCH151J50
	C126, C333, C845		CCSRCH180J50
	C116, C151, C314		CCSRCH220J50
	C152		CCSRCH221J50
	C209		CCSRCH331J50
	C104–C108, C134, C236		CCSRCH470J50
	C122, C208		CCSRCH471J50
	C128, C335		CCSRCH560J50
	C127, C334		CCSRCH5R0C50
	C124, C146		CCSRCH680J50
	C117, C240, C352, C360		CCSRCH681J25
	C129, C142		CEV101M10
	C113, C139		CEV220M16
	C413, C700, C808		CEV221M4
	C111, C149, C205, C207, C401		CEV470M6R3
	C403, C407		CEV470M6R3
	C140, C223, C224, C252, C264		CKSQYB105K10
	C312, C801, C802, C807		CKSQYB105K10
	C809–C815, C817–C819		CKSQYB105K10
	C229		CKSQYB224K16
	C148, C217, C414		CKSQYF105Z16
	C216, C313, C337		CKSRYB102K50
	C133, C136, C203, C220, C225		CKSRYB103K50
	C239, C320, C321, C603, C625		CKSRYB103K50
	C703, C711		CKSRYB103K50
	C101, C102, C114, C118, C119		CKSRYB104K16
	C121, C138, C204, C212, C213		CKSRYB104K16
	C227, C228, C231, C263		CKSRYB104K16
	C315–C317, C332, C804		CKSRYB104K16
	C281, C354		CKSRYB222K50
	C153, C266		CKSRYB223K25
	C214, C251, C261		CKSRYB472K50
	C357		CKSRYB473K16
	C330		CKSRYB682K50
	C109, C110, C120, C130, C131		CKSRYF104Z16
	C143, C150, C202, C215		CKSRYF104Z16
	C221, C222, C226, C230, C235		CKSRYF104Z16
	C265, C319, C327, C359, C367		CKSRYF104Z16
	C369, C370, C402, C404, C406		CKSRYF104Z16
	C408, C410, C412, C415		CKSRYF104Z16
	C601, C602, C604–C612		CKSRYF104Z16
	C614, C615, C617–C624, C626		CKSRYF104Z16
	C701, C702, C704–C710		CKSRYF104Z16
	C712–C726, C831–C833		CKSRYF104Z16
	C837–C839		CKSRYF104Z16
	C820, C821	(2.2μF)	VCG1030
	C299, C844	(0.47μF)	VCG1032
	C368, C409, C411	(47μF/6.3v)	VCH1166
	C405	(330μF/6.3v)	VCH1191
	VC1	(30pF)	VCM1013
	RESISTORS		
	R123	(39Ωx4)	ACN7047
	R732, R733, R735, R736	(47Ωx4)	ACN7077
	R632	(100Ωx4)	DCN1092
	R608, R609, R613, R624, R627	(10kΩx4)	DCN1094
	R629, R631, R633, R634, R638	(10kΩx4)	DCN1094
	R654, R657, R658, R662, R664	(10kΩx4)	DCN1094
	R706, R717, R718	(10kΩx4)	DCN1094
	R121, R663	(22Ωx4)	DCN1104
	R712, R715, R840	(0Ωx4)	DCN1106
	R1020, R162, R2010, R2020, R2030		RS1/10S0R0J
	R2040, R3050, R3520, R366, R4010		RS1/10S0R0J
	R4020, R4030, R4040, R4050, R4060		RS1/10S0R0J
	R667, R668, R671–R673		RS1/10S0R0J
	R675, R676, R685, R722, R8000		RS1/10S0R0J
	R821, R8300, R8400, R903		RS1/10S0R0J
	R202		RS1/10S101J
	R700		RS1/10S1R2J
	R807		RS1/16S1201F
	R361, R364		RS1/16S1203F
	R363, R365		RS1/16S1503F

Mark	No.	Description	Part No.
	R825–R827		RS1/16S1600F
	R805		RS1/16S2401F
	R806, R808		RS1/16S2701F
	R848–R850		RS1/16S4700F
	R164		RS1/16S5600F
	R3510	(100Ω)	VCN1120
	Other Resistors		RS1/16S□□□ J

OTHERS

	X2	CHIP CERALOCK (20MHz)	DSS1110
		7P FLEXIBLE CABLE	VDA1681
	CN6	7P FFC CONNECTOR	VKN1299
	CN7	B TO B CONNECTOR 14P	VKN1324
	CN4	24P FFC CONNECTOR	VKN1464
	CN3	12P FFC CONNECTOR	VKN1471
	CN1, CN60	14P FFC CONNECTOR	VKN1473
	CN2	26P FFC CONNECTOR	VKN1479
	CN70	19P FFC CONNECTOR	VKN1578
		BARCODE LABEL	VRW1773
	X1	CRYSTAL (13.824MHz)	VSS1129

K POWER SUPPLY ASSY

SEMICONDUCTORS

⚠	IC201,IC801	AN1431T
⚠	IC411	VZF1074
⚠	IC311	VZF1078
⚠	Q104	2SC1740S
⚠	Q102	2SC3377
⚠	Q101,Q103	VZF1062
⚠	D511	10ELS2
⚠	D105,D107,D110,D514	1SS270A
⚠	D102	EG01C
⚠	D213	MTZJ15B
⚠	D104	MTZJ2.4B
⚠	D812	MTZJ6.8B
⚠	D513	MTZJ8.2B
⚠	D101	VZF1044
⚠	D108	VZF1045
⚠	D811	VZF1054
⚠	D211,D711	VZF1065
⚠	D411	VZF1075
⚠	D311	VZF1076
⚠	D103	VZF1077
⚠	D106,D109,D151	VZF1071

RESISTORS

	R511	VZC1057
	R611	VZC1060
	R711	VZC1061

OTHERS

⚠	P211 (1.0A/60V)	VEK1041
⚠	F101 (2.0A/125V)	VEK1049

Mark	No.	Description	Part No.

L MSWB ASSY

SWITCHES AND RELAYS

⚠	S10		ASG1006

OTHERS

	CN10	AC CORD SOCKET	RKP1751

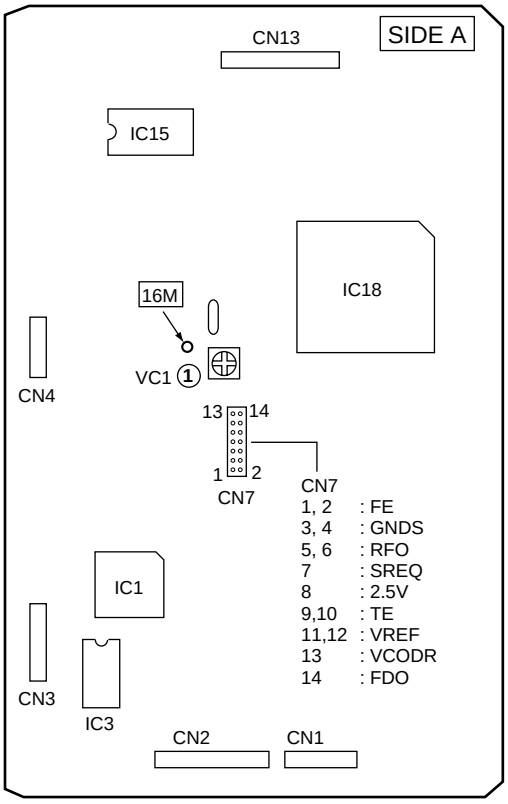
6. ADJUSTMENT

6.1 ADJUSTMENT ITEMS AND LOCATION

Note : When the Traverse mechanism adjustment is not properly adjusted, jitter, error rate and play ability are defective. The noise may come out by the case.

■ Adjustment Points (PCB Part)

DVDM ASSY

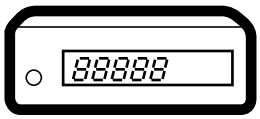


■ Adjustment Items

[Electrical Part]

① Master Clock Adjustment

6.2 JIGS AND MEASURING INSTRUMENTS

 Frequency counter Display digit ≥ 8-digit	 ⊖ Screwdriver (small)

6.3 NECESSARY ADJUSTMENT POINTS

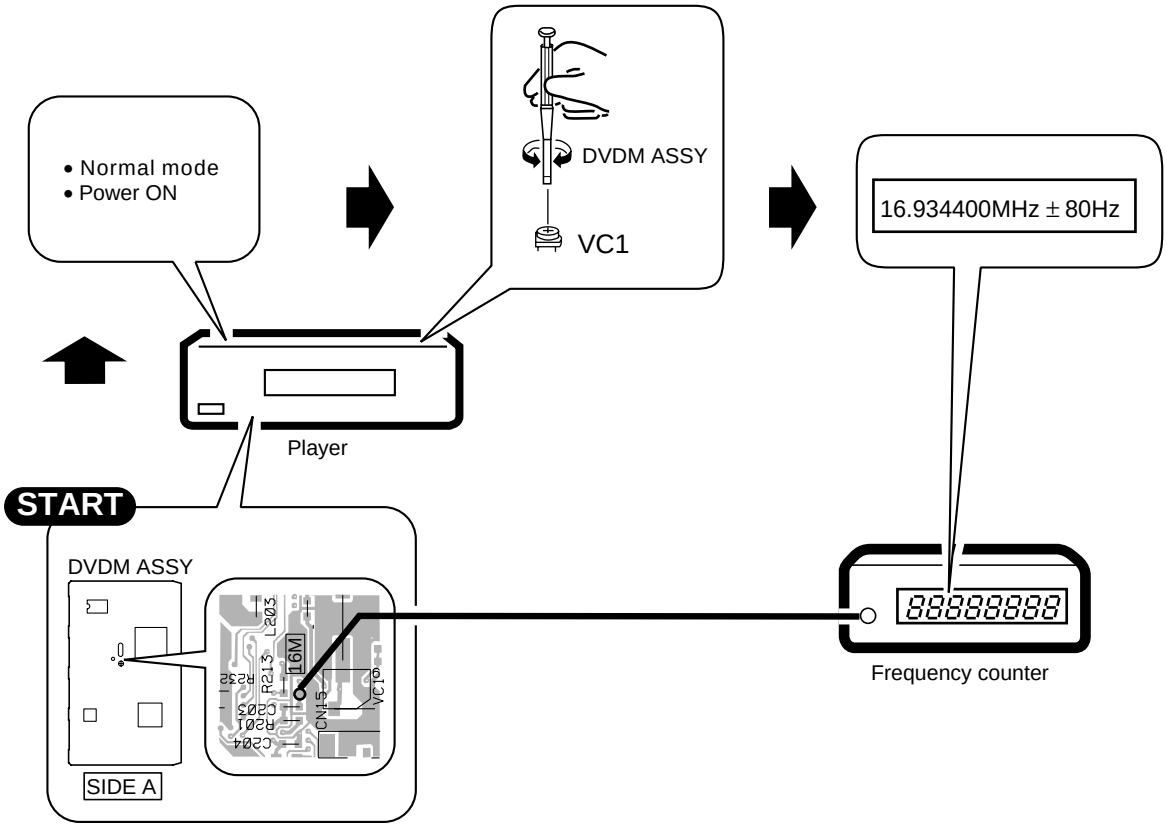
When	Adjustment Points
Exchange board DVDM ASSY	**Mechanical point** ＿＿＿＿＿＿ **Electric point** ＿＿＿＿＿＿

Note : ① is adjusted already.

6.4 ELECTRICAL ADJUSTMENT

① Master Clock Adjustment

• When not properly adjusted : Uneven color



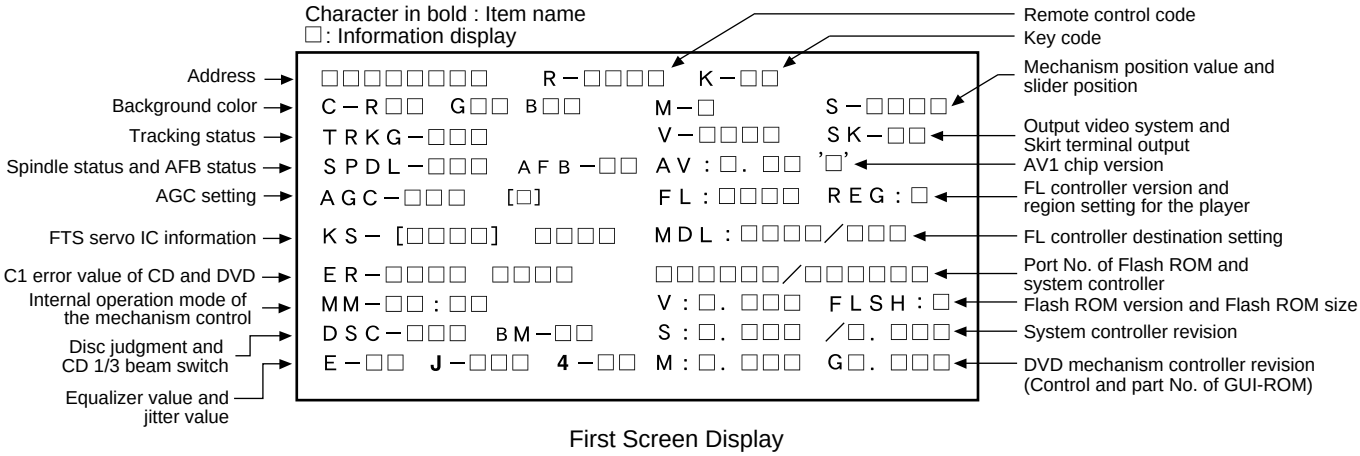
7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 TEST MODE SCREEN DISPLAY

Consecutive double-OSD display is supported during test mode. The screen is composed 10 lines with a maximum of 32 characters per line. It can't be used with the debugging display mode together.

• Screen Composition



First Screen Display

Caution :
The first screen and second screen switch by pressing [DISPLAY] key of the remote control unit.
It is only a version display part on the lower right of the screen those contents of display change.
ATB : ON/OFF information display and AGC manual setting display deleted with the second generation.
The displays of Tilt error value, Tilt servo status and pickup DVD/CLD display deleted with the third generation becomes LD part is deleted.

• Description of Each Item on the Display

(1) Address indication

The address being traced is displayed in number.

DVD : ID indication (hexadecimal number, 8 digits) [＊＊＊＊＊＊＊＊]
CD : A-TIME (min. sec.) [0 0 0 0 ＊＊＊＊]

(Note : For DVDs, decimal-number indication is possible.)

(2) Code indication of the remote control unit [R – ＊＊＊＊]

The code for the key pressed on the remote control unit, which is received by the FL controller, is displayed while the key is pressed. In the case of the double code, the second code will be displayed.

(3) Key code indication for the main unit [K – ＊＊]

The code for the key pressed on the main unit, which is received by the system controller, is displayed while the key is pressed.

(4) Background color indication [C – R＊＊ G＊＊ B＊＊]

(5) Tracking status [TRKG – ＊＊＊]

Tracking on	[ON]
Tracking off	[OFF]

(6) ① Spindle status [SPDL – ＊＊＊]

Spindle accelerator and brake, free-runnimg	[A/B]
FG servo	[FG]
Rough, velocity phase servo	[SRV]
Offset addition, rough, velocity phase servo	[O_S]

② AFB status [AFB – ＊＊]

ON	[ON]
OFF	[OFF]

(7) Mechanism position value [M – ＊]

Position code	[1] to [3]

(8) Slider position [S – ＊＊＊＊]

CD TOC area	[IN]
CD active area	[CD]

(9) AGC setting [AGC – ＊＊]

AGC on	[AGC-ON]
AGC off	[AGC-OFF]

(10) Output video system [V – ＊＊＊＊]

NTSC system	[NTSC]
PAL system	[PAL]
Auto-setting	[AUTO]

Skirt terminal output [SK – ＊＊]

VIDEO	[00]
S-VIDEO	[01]
RGB	[02]

＊: Display only the model which can do the output setting of skirt terminal.

(11) FTS servo IC information

DSP coefficient indication [KS – [＊＊＊＊] ＊＊＊＊]
Displays the address (four digits) of the specified coefficient and the setting value (four digits) with [TEST] and [9] keys.

(12) Error rate indication

① C1 error value of CD [ER – C1 ＊＊＊＊]
② C1 error value of DVD [ER – ＊＊＊＊ ＊＊＊＊]

(13) Internal operation mode of mechanism controller [MM – ＊＊ : ＊＊]

Internal mechanism mode (2 digits) and internal mechanism step (2 digits) of the mechanism controller

(14) ① Disk sensing [DSC – ＊＊＊]

The type of discs loaded is displayed.
[DVD], [CD], [VCD], [ ]

② CD 1/3 beam switch [BM – ＊＊]

(15) ① Equalizer value [E – ＊＊]

② Jitter value [J – ＊＊]

nake the jitter four times, and renew it in every one second.
[4 – ＊＊]
CD is effective only in the jitter value.

(16) Version of the AV-1 chip [AV : ＊ . ＊＊' ＊']

(17) ① Version of the FL controller [FL : ＊＊＊＊]

② Region setting of the player [REG : ＊]

Setting value [1] to [6]

(18) Destination setting of the FL controller [MDL : ＊＊＊＊ / ＊＊＊]

For charactors in front represent the type of model :
There charactors that follow represent the destination code.
J : /J, K : /KU, /KC, /KU/KC, R : /RAM, /RL, /RD, /LB,
WY : /WY

(19) The part number of the flash ROM and system controller [＊＊＊＊＊＊ / ＊＊＊＊＊＊＊]

① Part number of the flash ROM <Front>
(Example) VYW1536-A → W1536A
(Example) PD6256A9 → 6256A9
② Part number of the system controller <Rear>
(Example) PD3381T1 → 3381T1

(20) ① Version of the flash ROM [V : ＊ . ＊＊＊]

② Flash ROM size [FLSH = ＊]

(21) Revision of the system controller [S : ＊ . ＊＊＊ / ＊ . ＊＊]

① Revision number of the external ROM part (flash ROM) of the system controller <Front>
② Revision of the internal ROM part of the system controller <Rear>

(22) Revision of the DVD mechanism controller [M : ＊ . ＊＊＊]

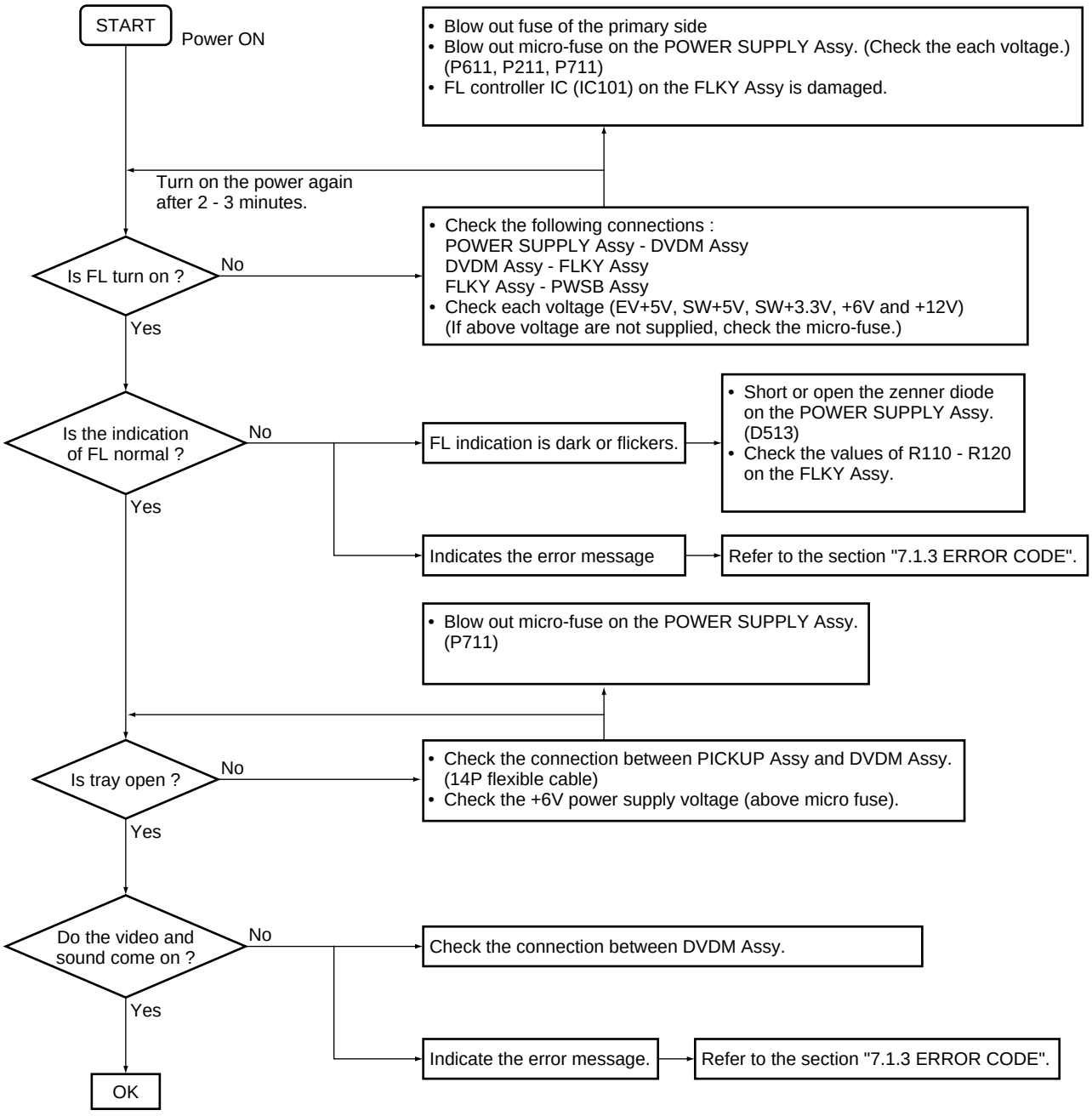
Revision number of the external ROM part (flash ROM) of the DVD mechanism controller

(23) Control and part numbers of the GUI-ROM [GUI : ＊＊＊＊]

No GUI model displays as "—— / ——".
OEM model displays the part number of GUI-ROM [GUI : ＊＊＊＊]

7.1.2 TROUBLE SHOOTING

- No Power ON
- FL is not turned ON
- FL indication is unusual



7.1.3 ERROR CODE

Error codes that are displayed on the FL display without using the remote control unit

FL Display	Possible causes	Operation of the unit
AV1 VER	AV-1 chip is not a match with the program of system controller	The sound may not out with the specific audio.
CPU AERR	CPU address error (Hardware is unusual.)	No operation
DMA AERR	DMA address error (Hardware is unusual.)	No operation
FLASH ID	Difference in versions of the internal ROM of the system controller and of the flash ROM, or bus line failure or reverse installation	No operation
FLASH WRP	Write protect error of the flash ROM	No operation
FLASH SIG	Difference in part number of the flash ROM (When the ROM which could't be used was used.)	No operation
FLASH SUM	Check sum error of the flash ROM (It exceeds the regular size.) or reverse installation (Hardware is unusual.)	No operation
FLASH SIZE	Size error of the flash ROM (Use 4 or 8 M-bit.)	No operation
ILLGAL	The system controller fetched a code other than an operation code (Hardware is unusual.)	No operation
RESERVE	Undefined interrupt (Hardware is unusual.)	No operation
SLOT	Inappropriate slot command issued (Hardware is unusual.)	No operation

Error codes that are displayed on the FL display by using the remote control unit (Mechanism controller error)

To display: ESC + DISPLAY + DISPLAY; Location of the display: At the two digits of center of the FL display
To display the error history: ESC + DISPLAY + One shot; Location of the display: TV screen

FL	Description of Error	Causes if with a DVD	Causes if with a CD	Operation of the Unit
11	Search timeout	Search could not be complete within 7 seconds.	Search could not be complete within 7 seconds, and it could not enter the target area within 7 seconds by VCD scan.	CD : Stops, DVD: Continues operation
12	Search retry error	A search could not be completed after 3 retries, search backup was executed 4 times, or in a case of timeout (6 seconds) while the unit was tracing 11 tracks or more beyond the target while the search operation was converging.	Backup against slider skip was executed 4 times during a search, or slider skip twice resulted in starting from the read-in point.	CD: Stops, DVD: Continues operation
19	Tracing timeout while converging	Timeout (10.5 seconds) while tracing at the stage of convergence of a search.		Stop
1B	Index 0 search error		During Track (Index) Search, the search for the beginning of a program could not be completed within 3 seconds (20 seconds in the case of Index Search) after positioning based on the TOC data was completed.	Stop
22	Timeout of slider inner circumference	Inside switch could not ON within 3 seconds.		Stop
23	Timeout of slider outer circumference	Inside switch could not OFF within 2 seconds.		Stop
33	No FOK pulse during playback CLVA	When the focus was deviated continuously 20 times.		Adjusts focus at the innermost circumference and tries to return to its position where the error was generated (for 3 times),then opens. If the same error persists after one retry, the tray opens. (No FOK pulse)
38	Disc-type-sensing error	If normal starting was impossible in the following three cases, disc-type sensing will be retried if other errors occure excepting C5 error. However, when the focus error "33" was occured continuously 3 times, it is finished as "38 error" at the moment: (1) startup with the first disc-type-sensing result, (2) forced startup with another disc by designating the disc type, (3) forced startup with the original disc by designating the disc type.		Open

FL	Description of Error	Causes if with a DVD	Causes if with a CD	Operation of the Unit
39	SGC converge timeout	SGC could not converge during detects the peak		Open
41	Spindle timeout	The unit did not enter Stop mode within 10 seconds of issuance of a Stop command.		Stop
48	Spindle FG transition timeout	The spindle could not converge into within ± 12% of the target FG rotation speed within 10 seconds after spindle kick. The first time after startup (the first time after disc distinction), it doesn't become the number of the target rotation within five seconds. The first time after startup, detects the abnormal rotation number of high-speed continuously 3 loops. DVD: 5 to 9 mS , CD: 40 to 60 mS		Stops. (FG timeout)
49	Spindle PLL transition timeout	After the second times after startup, it doesn't become the number of the target rotation within five seconds. Detects the abnormal high-speed or low-speed rotations. DVD: 5 to 9 mS , CD: 40 to 60 mS		Stops. ("73" is displayed during starting process.)
4A	Spindle lock timeout	Spindle could not lock more than 1.5 seconds before start the AFB.		Stops. ("73" is displayed during starting process.)
51	Auto sequence timeout of peak detection	ABUSY did not return within 1 second after the DDTCT (peak detection) command was sent.		Stop
52	Auto sequence timeout of focus jump down	ABUSY did not return within 30 mS after the FJMPD (Focus jump 1 to 0) command was sent.		Stop
53	Auto sequence timeout of focus jump up	ABUSY did not return within 30 mS after the FJMPU (Focus jump 0 to 1) command was sent.		Stop
54	Auto sequence timeout of play AGC	ABUSY did not return within 50 mS after the GSUMON (play-AGC-measuring) command was sent.		Stop
55	Auto sequence timeout of disc-type-sensing	ABUSY did not return within 2 seconds after the DJSRT (disc-sensing) command was sent.		Stop
56	Auto sequence timeout of ATB2	ABUSY did not return within 1 second after the TBLOFS (Internal ATB after the completion of external ATB) command was sent.		Stop
57	Auto sequence timeout of tracking servo ON	ABUSY did not return within 500 mS after the TSON (tracking servo ON) command was sent.		Stop
58	Auto sequence timeout of ATB1	ABUSY did not return within 200 mS after the TBL (external ATB) command was sent.		Stop
59	Auto sequence timeout of focus gain adjustment	ABUSY did not return within 2 seconds after the FGN (focus gain adjustment) command was sent.		Stop
5A	Auto sequence timeout of tracking gain adjustment	ABUSY did not return within 2 seconds after TGN (tracking gain adjustment) command was sent.		Stop
5B	Auto sequence timeout of offset adjustment	ABUSY did not return within 1 second after the CMDAVE (offset adjustment) command was sent.		Stop
5C	Auto sequence timeout of modulation factor measurement	ABUSY did not return within 200 mS after the ADJMIR (modulation factor measurement) command was sent.		Stop
5D	Auto sequence timeout of auto focus bias	ABUSY did not return within 2 seconds after the AFB (auto focus bias) command was sent.		Stop
5F	Auto sequence already busy	A command could not be sent because ABUSY was low. ABUSY did not return within 200 mS after TLV command was sent.		Stop
62	Pause retry error	Pause mode could not be restored within three retries after it had been released.		Continues operation

FL	Description of Error	Causes if with a DVD	Causes if with a CD	Operation of the Unit
71	ID can not read during tracing	An ID could not be read for 1 second or more.		Stop
72	Subcode check failure during playback		No frame could be read for 3 seconds or more.	Stop
73	ID can not read at the startup	An ID could not be read within 1 second after the AFB adjustment had been finished.		Opens (ID readout failure)
74	Subcode check failure during startup		No subcode could be read within 3 seconds after AFB adjustment had been finished.	Opens (Subcode readout failure).
81	Timeout for reading TOC of the mechanism controller		TOC readout took 30 seconds or more.	Stop
82	Timeout for reading TOC of the system controller		Reading TOC of the system controller took 30 seconds or more.	Stop
A1	Communication timeout of DSP command	A command could not be issued to DSP because Command Busy (XCBUSY) was in force (XCBUSY = L) for a specified time (about 200 µS).		No operation
A2	Communication timeout for reading DSP coefficient	Command Busy (XCBUSY) was in force for a specified time (about 200 µS) before and after a coefficient read command was issued to DSP, or the address echo-back after command issuance did not match the setup address.		No operation
A3	Communication timeout for writing DSP coefficient	Command Busy (XCBUSY) was in force for a specified time (about 1024 mS) before and after the coefficient write command was issued to DSP.		No operation
A4	Communication timeout for continuously writing DSP coefficient	Command Busy (XCBUSY) was in force for 200 µS during continuous coefficient writing, or before and after a continuous write command was issued to DSP.		No operation
B1	Timeout error for backup	In the tracing state during the backup sequence, codes could not be read for 1 second or more. In the backup sequence, tracking ON sequence of the servo DSP could not be completed even if more than 500 mS after the tracking ON command was issued.		Stops
B2	Retry error for backup	Tracing impossible after retring the tracking ON for 3 times in the backup sequence.		Stops
B3	Retry error for trace	During tracing, runaway was detected after three iterations of backup operations for detecting runaway.		Stops
C3	Detection of tracking overcurrent	During playback, the overcurrent detection port was at L for 300 ms or more continuously.		Stops (the mechanical controller operates independently).
(C5)	Short-circuit test corresponding error	While the power was on, the overcurrent detection port was at L for 40 ms or more continuously.		Turns off the power instantly (No indication on the FL display and no writing to flash memory)
E3	Violation against digital copy guard			Stops
F5	Tray being pushed	The tray switch that had been Open mode was forcibly changed to a mode other than Open by an external force.		Closes
F8	Loading timeout	Loading, unloading or clamping could not be completed within a specified time (about 5 seconds).		Reverses the loading direction. It timeout is repeated upon retry, the unit stops.
FC	Focus	The following error occured eight times. (1) Focus ON sequence could not be completed even if more than two seconds after the focus ON command (to the servo DSP) was sent. (2) Focus IN sequence was finished, actually focus IN was not completed.		Stops wherever possible then opens (stops in the case of side B).

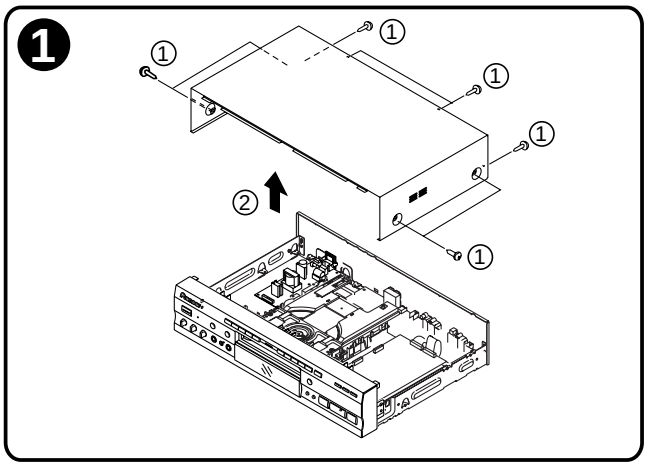
Error codes that are displayed on the FL display by using the remote control unit (Device error)

To display: ESC + DISPLAY + DISPLAY; Location of the display: At the two digits of left of the FL display

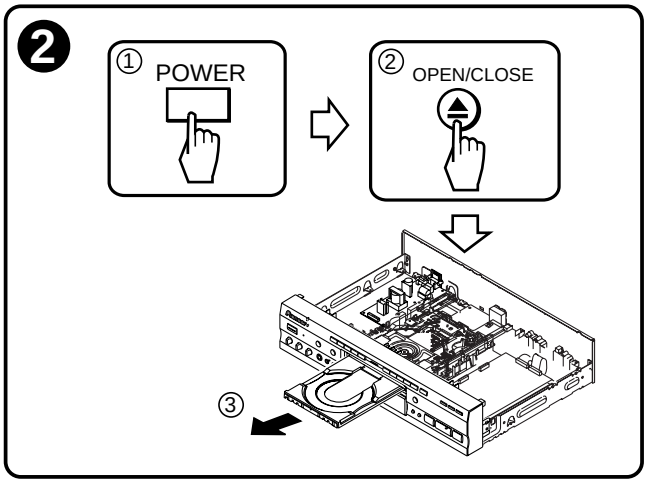
FL	Description of Error	Causes if with a DVD	Causes if with a CD	Operation of the Unit
bit3=1 08 etc.	AV1 access error (read, write NG)			No operation or it becomes debugging indication if the power is able to ON.
bit2=1 04 etc.	MY CHIP access error			
bit1=1 01 etc.	SRAM access error			

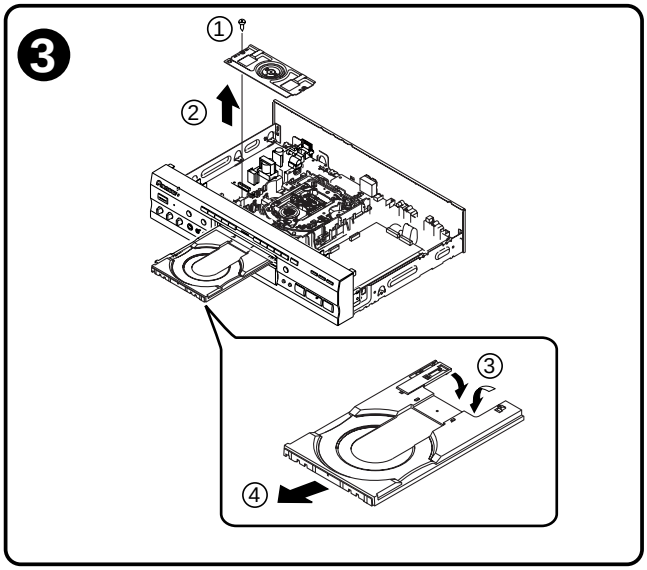
7.1.4 DISASSEMBLY

BONNET

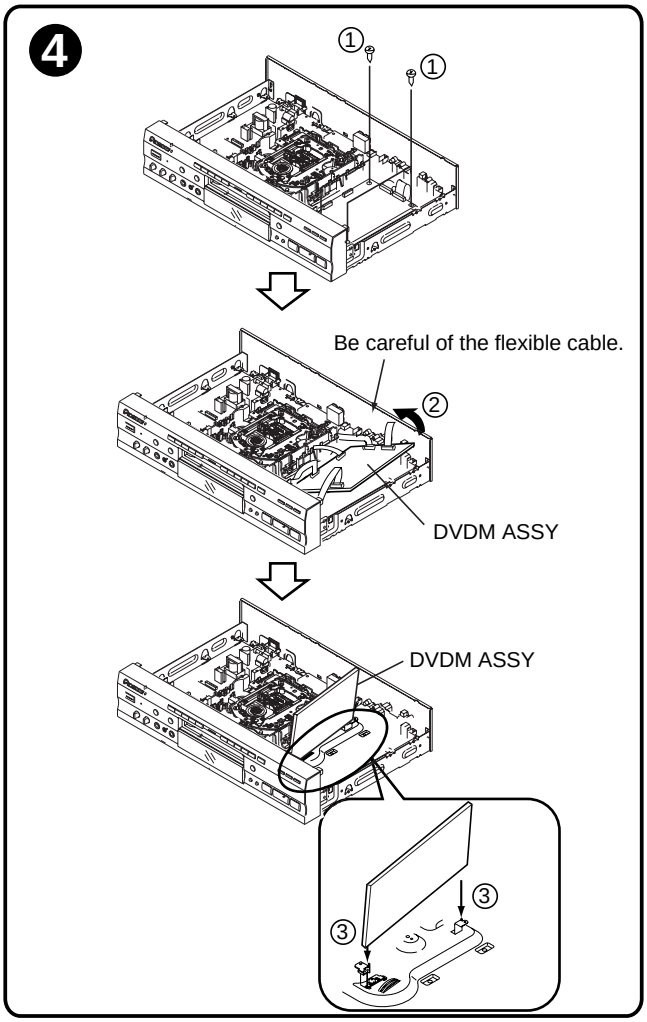


DISC TRAY

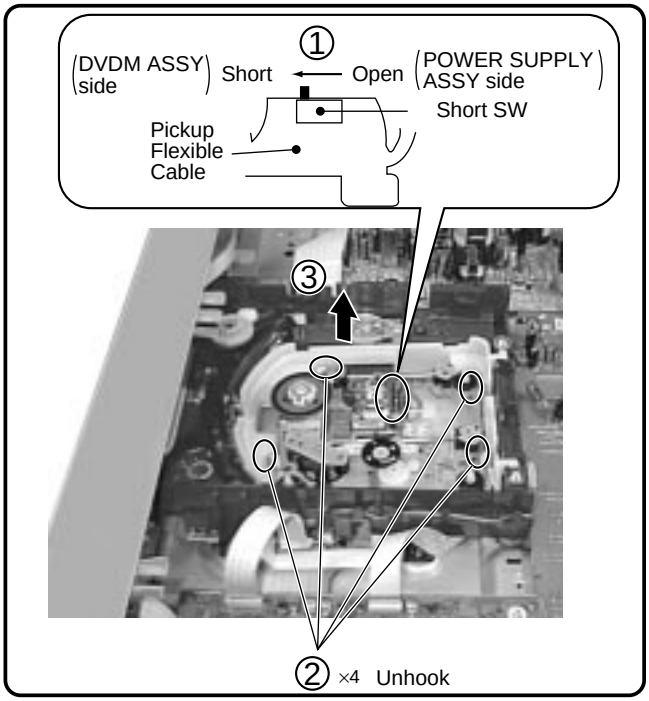




DVDM ASSY



■ TRAVERSE MECHANISM ASSY-S



7.2 PARTS

7.2.1 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

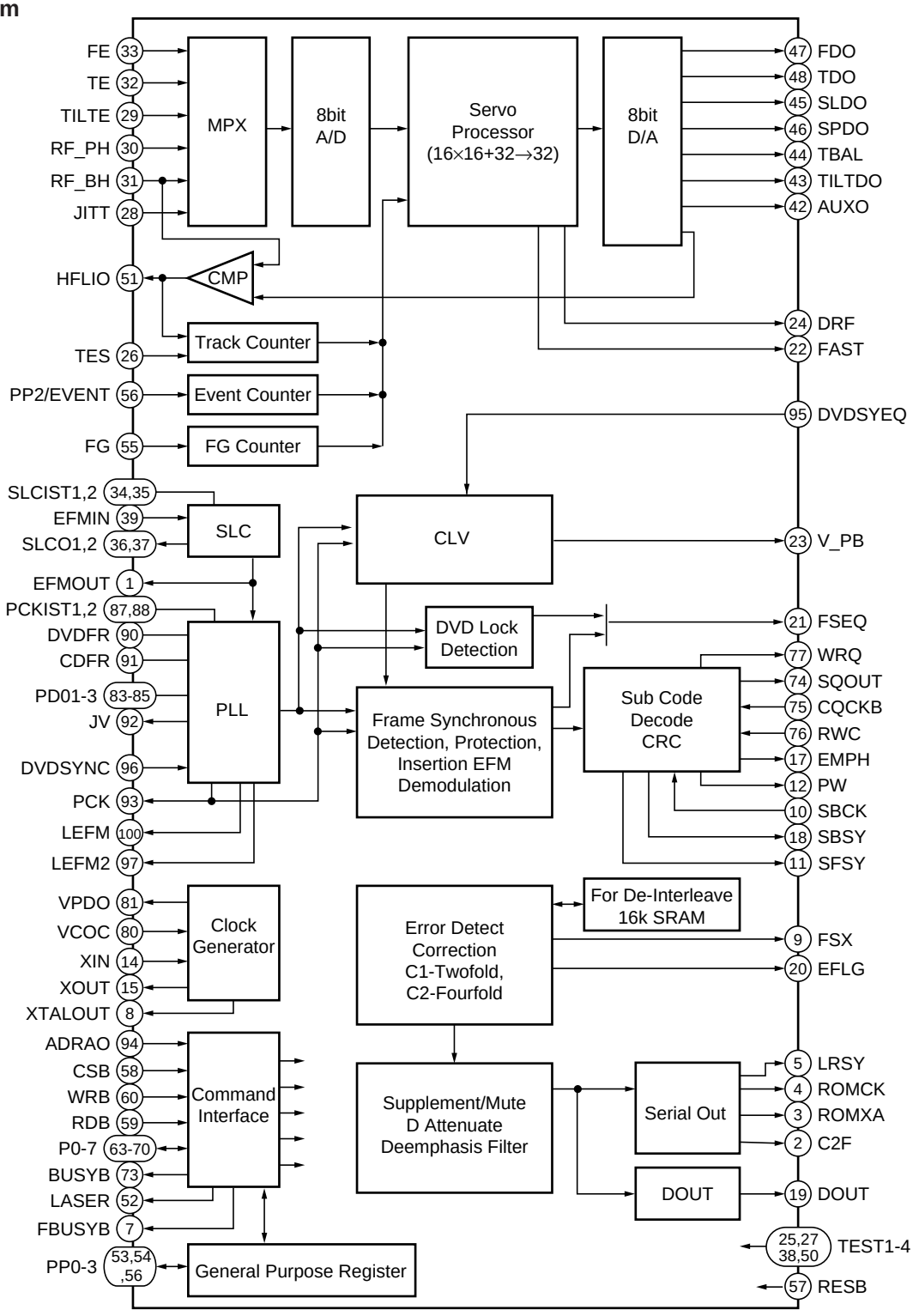
●List of IC

LC78652W, PD3410A, MB86373

■ LC78652W (DVDM ASSY : IC2)

• DSP IC

● Block Diagram



●Pin Function

No.	Pin Name	I/O	Function
1	EFMOUT	O	Output the state that was binary-stated value EFM
2	C2F	O	C2 flag output
3	ROMXA	O	CD-ROM data output
4	ROMCK	O	Shift clock output for CD-ROM data output
5	LRSY	O	L/R clock output for CD-ROM data output
6	PP3	I/O	General-purpose port input/output / DVD sync. signal input N ch-OD output
7	FBUSYB	O	Busy signal output of DSP process operation N ch-OD output
8	XTALOUT	O	External system clock output
9	FSX	O	CD 1 frame sync. signal output
10	SBCK	I	Subcode reading out clock input
11	SFSY	O	Frame sync. signal output of subcode
12	PW	O	Subcode P, Q, R, S, T, U, V and W output
13	VSS	–	GND pin
14	XIN	I	Connect a crystal resonator (16.9344MHz)
15	XOUT	O	Connect a crystal resonator
16	DVDD1	–	3.3V power supply of the oscillation circuit
17	EMPH	O	Monitor pin of the deemphasis
18	SBSY	O	Sync. signal output of the subcode block
19	DOUT	O	Audio EIAJ data output
20	EFLG	O	Error correction state monitor of the error correction C1 and C2
21	FSEQ	O	Detection monitor of the CD/DVD frame sync. signal
22	FAST	O	Playback speed monitor N ch-OD output
23	V_PB	O	Monitor output of the rough servo/CLV control
24	DRF	O	In focus monitor
25	TEST3	I	Test input 3
26	TES	I	Tracking error signal input
27	TEST2	I	Test input 2
28	JITT	I	Jitter quantity detecting signal input of EFM PLL
29	TILTE	I	Tilt error signal input
30	RF_PH	I	RF peak hold signal input
31	RF_BH	I	RF bottom hold signal input
32	TE	I	Tracking error signal input
33	FE	I	Focus error signal input
34	SLCIST1	–	Current setting pin 1 of the constant current charge pump for SLC
35	SLCIST2	–	Current setting pin 2 of the constant current charge pump for SLC
36	SLCO1	O	Control output 1 for SLC
37	SLCO2	O	Control output 2 for SLC
38	TEST1	I	Test input 1
39	EFMIN	I	EFM/EFM + input
40	AVDD	–	5V power supply of A/D and D/A for servo
41	AVSS	–	GND of A/D and D/A for servo
42	AUXO	O	DA auxiliary output
43	TILTDO	O	Tilt control signal output
44	TBAL	O	Tracking balance control signal output
45	SLDO	O	Sled control signal output
46	SPDO	O	Spindle control signal output
47	FDO	O	Focus control signal output
48	TDO	O	Tracking control signal output
49	VREF	–	Reference level of D/A for servo
50	TEST4	I	Test input 4

No.	Pin Name	I/O	Pin Function
51	HFLIO	I/O	Mirror detection signal input/output
52	LASER	O	Output pin for laser ON/OFF control
53	PP0/DVD_CDB	I/O	General-purpose port input/output / Disc discrimination signal output
54	PP1/CRCERRB	I/O	General-purpose port input/output / Subcode CRC result signal output
55	FG	I	FG counter input
56	PP2/EVENT	I/O	General-purpose port input/output / Event counter input
57	RESB	I	Reset input
58	CSB	I	Chip select input
59	RDB	I	Internal state reading signal input
60	WRB	I	Command / data writing signal input
61	DVDD2	–	5V power supply
62	VSS	–	GND
63	P0	I/O	Command / data input/output
64	P1		
65	P2		
66	P3		
67	P4		
68	P5		
69	P6		
70	P7		
71	VSS	–	GND
72	DVDD1	–	3.3V power supply for internal
73	BUSYB	O	Busy signal output of command process
74	SQOUT	O	Serial output of subcode Q
75	CQCKB	I	Shift clock input for subcode Q data output
76	RWC	I	Update permission input of subcode Q
77	WRQ	O	Read out ready monitor of subcode Q
78	AVSS	–	PLL GND for internal system clock
79	VRPFR	–	VCO oscillation range setting of PLL for system clock
80	VCOC	I	Connect a PLL filter for system clock
81	VPDO	O	
82	AVDD	–	PLL 5V power supply for system clock
83	PDO1	I/O	PLL filter connection pin 1 for EFM playback
84	PDO2	I/O	PLL filter connection pin 2 for EFM playback
85	PDO3	I/O	PLL filter connection pin 3 for EFM playback
86	AVSS	–	PLL GND for EFM playback
87	PCKIST1	–	Current setting 1 of PLL constant current charge pump for EFM playback
88	PCKIST2	–	Current setting 2 of PLL constant current charge pump for EFM playback
89	AVDD	–	PLL 5V power supply for EFM playback
90	DVDFR	–	VCO oscillation range setting of PLL for EFM playback 1
91	CDFR	–	VCO oscillation range setting of PLL for EFM playback 2
92	JV	O	Jitter output of PLL clock for EFM playback
93	PCK	O	Bit clock output for EFM playback
94	ADRAO	I	Address input
95	DVDSYEQ	I	DVD synchronize pulse input
96	DVDSYNC	I	DVD synchronous signal input
97	LEFM2	O	Output the state that cut and out a signal which was binary-stated value EFM with PCK 2
98	DVDD1	–	3.3V power supply for I/O
99	VSS	–	GND
100	LEFM	O	Output the state that cut and out a signal which was binary-stated value EFM with PCK 1

■ PD3410A (DVDM ASSY : IC11)

• System Control IC

● Pin Function

No.	Mark	Pin Name	I/O	Function
1	XCS3/XCASL	XCS3	O	PD4995A (MY CHIP) chip select signal output
2	GND	GND	–	GND
3	CK	HCPUCK	O	
4	VCC	V+3D	–	V+3D
5	PICLK	–	I/O	N.C.
6	PIDATA	–	I/O	N.C.
7	GND	GND	–	GND
8	PORTH0	–	O	N.C.
9	PORTH1	–	O	N.C.
10	PORTH2	–	O	N.C.
11	PORTH3	V_SEL2	O	Composite/S switching signal output of the skirt terminal
12	VCC	V+3D	–	V+3D
13	PORTH4	–	O	N.C.
14	PORTH5	–	O	N.C.
15	PORTH6	–	O	N.C.
16	PORTH7	–	O	N.C.
17	GND	GND	–	GND
18	EXTAL	EXTAL	I	Connect a ceramic resonator
19	XTAL	XTAL	O	
20	VCC	V+3D	–	V+3D
21	PORTG0	XCSDF0	O	DAC chip select signal output
22	PORTG1	–	O	N.C.
23	PORTG2	–	O	N.C.
24	PORTG3	–	O	N.C.
25	PORTG4	–	O	N.C.
26	GND	GND	–	GND
27	PORTG5	–	O	N.C.
28	PORTG6	–	O	N.C.
29	PORTG7	XAMUTE	O	Last stage mute signal output of the audio
30	PORTF0	44X48	O	DAC 44/48 FS switching signal output
31	PORTF1	–	I	N.C.
32	PORTF2	3DON	O	3D audio ON/bypass switching signal output
33	VCC	V+3D	–	V+3D
34	PORTF3	–	O	N.C.
35	PORTF4	–	O	N.C.
36	PORTF5	–	O	N.C.

No.	Mark	Pin Name	I/O	Function
37	PORTF6	XANR	O	Analog NR ON/OFF switching signal output
38	PORTF7	XCSVE	O	Serial communication enable signal output of the video encoder
39	GND	GND	–	GND
40	AVSS	GND	–	GND
41	AVCC	V+3D	–	V+3D
42	OUTA_P	LODRV	O	Loading drive output
43	VREF	V+3D	–	V+3D
44	OUTB_P	TEI	O	Tracking offset signal output
45	AVSS	GND	–	GND
46	AVSS	GND	–	GND
47	PORTE0	V_SEL	O	Component/composite switching signal output
48	PORTE1	–	I	PDC016A (Graphic IC)
49	PORTE2	–	I	
50	PORTE3	FOFST1	I/O	Focus offset adjustment output 1
51	PORTE4	FOFST2	I/O	Focus offset adjustment output 2
52	PORTE5	XDFINH	I/O	Defect shunt signal output
53	PORTE6	DVD/XCD	O	DVD/CD switching signal output
54	PORTE7	LD1_ON	O	650 nm laser diode ON signal output
55	PORTD0	LD2_ON	O	780 nm laser diode ON signal output
56	VCC	V+3D	–	V+3D
57	PORTD1	DPD/TE	O	1 beam/3 beams switching signal output
58	PORTD2	AGOFF	O	AGC ON/OFF switching signal output of RF IC
59	PORTD3	XCD2X	O	Signal output for switching the double speed playback
60	PORTD4	OEICG	O	OEIC gain switching signal output
61	GND	GND	–	GND
62	PORTD5	XMON	O	ON/OFF switching signal output of the spindle motor control output
63	PORTD6	–	O	
64	PORTD7	–	I	N.C.
65	PORTJ0	XDRVMUT	O	Driver mute output
66	PORTJ1	–	O	N.C.
67	PORTJ2	–	O	N.C.
68	PORTJ3	–	I	N.C.
69	VCC	V+3D	–	V+3D
70	PORTJ4	TM_ENT	I	Test mode input
71	PORTJ5	–	O	N.C.
72	PORTJ6	VSEL_SW	I	Component/composite SW input
73	PORTJ7	–	I	N.C.
74	PB0/TIOCA2	XCBUSY	I	Command busy input
75	PB1/TIOCB2	XABUSY	I	Auto-sequence busy input
76	PB2/TIOCA3	XINT2	I	Interrupt input 2 (AV-1)
77	VCC	V+3D	–	V+3D
78	PB3/TIOCB3	LT1	O	Communication response signal output to the FL controller
79	PB4/TIOCA4	SBSY	I	Subcode block sync. input
80	XMTEST	–	I	V+3D
81	XCPUMD	–	I	V+3D
82	XRES	XRESET	I	Reset input

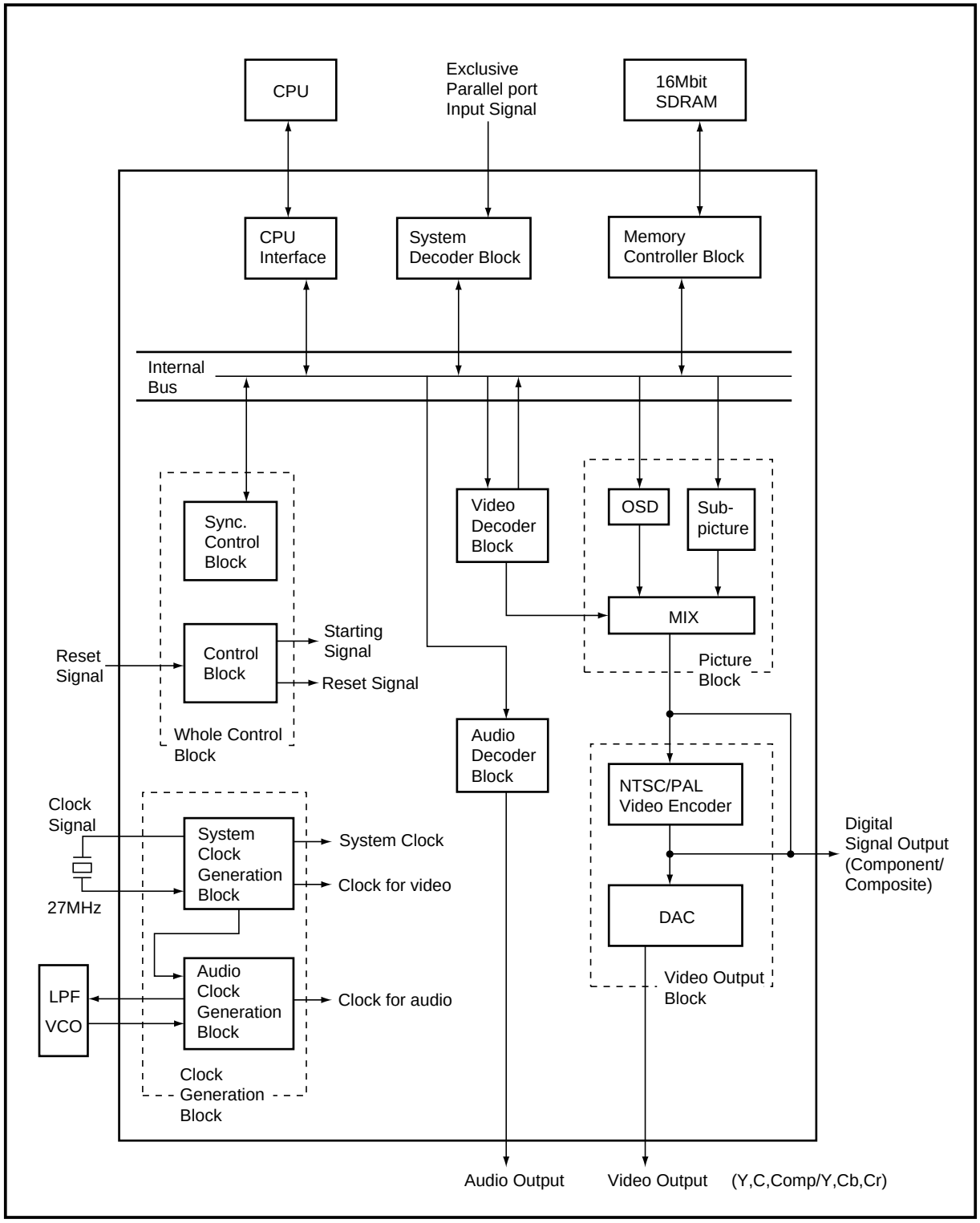
No.	Mark	Pin Name	I/O	Function
83	GND	GND	–	GND
84	AN0	LODPOS	I	Loading position input
85	AN1	SLDPOS	I	Slider position input
86	AN2	–	I	N.C.
87	AN3	NAP_SW	I	NTSC/AUTO/PAL SW input
88	AN4		I	
89	AN5		I	
90	AN6		I	
91	AN7	–	I	
92	Avref	V+3D	–	V+3D
93	AVCC	V+3D	–	V+3D
94	AVSS	GND	–	GND
95	PB5/TIOCB4	–	I	N.C.
96	PB6/TIOCXA4/TCLKC	C2F	I	C2 error input
97	PB7/TIOCXB4/TCLKD	XRDY	I	Communication request input from the FL controller
98	PB8/RxD0	SSI	I	Serial data input (FL controller)
99	PB9/TxD0	SSO	O	Serial data output (FL controller, DAC)
100	VCC	V+3D	–	V+3D
101	PB10/RxD1	RXD	I	Data input of the RS-232C
102	PB11/TxD1	TXD	O	Data output of the RS-232C
103	PB12/XIRQ4/SCK0	SSCK	I/O	Serial clock output (FL controller, DAC)
104	PB13/XIRQ5/SCK1	XIRQL10	I	Interrupt input 1 (MY CHIP)
105	GND	GND	–	GND
106	PB14/XIRQ6	XIRQL11	I	Interrupt input 2 (MY CHIP)
107	PB15/XIRQ7	XINT0	I	Interrupt input 0 (AV-1)
108	PA0/XCS4/TIOCA0	XCS4	O	Servo DSP chip select signal output
109	PA1/XCS5/XRAS	N.C.	O	Non connection
110	PA2/XCS6/TIOCB0	XCS6	O	AV-1 chip select signal output
111	XWAIT	XWAIT	I	Wait signal input
112	XWRL	XWRL	O	Write pulse output L
113	GND	GND	–	GND
114	XWRH	XWRH	O	Write pulse output H
115	XRD	XRD	O	Read pulse output
116	PA7/XBACK	XCURDET	I	Over-current detection signal input
117	PA8/XBREQ	CTS	I	RS-232C transfer permit input
118	PA9/XAH/XIRQOUT/ XADTRG	DTR	O	RS-232C transfer permit output
119	PA10/DPL/TIOCA1	XINT1	I	Interrupt input 1 (AV-1)
120	PA11/DPH/TIOCB1	THLD	I	Tracking hold signal input
121	VCC	V+3D	–	V+3D
122	PA12/XIRQ0/DACK0/ TCLKA	DACK0	O	DMA response output (MY CHIP)
123	PA13/XIRQ1/ XDREQ0/TCLKB	XDREQ0	I	DMA request input (MY CHIP)
124	PA14/XIRQ2/XDACK1	XDACK1	O	DMA response output (AV-1)
125	PA15/XIRQ3/XDREQ1	XDREQ1	I	DMA request input (AV-1)
126	AD0	D0	I/O	Data bus 0

No.	Mark	Pin Name	I/O	Function
127	GND	GND	–	GND
128	AD1	D1	I/O	Data bus 1
129	AD2	D2	I/O	Data bus 2
130	AD3	D3	I/O	Data bus 3
131	AD4	D4	I/O	Data bus 4
132	AD5	D5	I/O	Data bus 5
133	AD6	D6	I/O	Data bus 6
134	VCC	V+3D	–	V+3D
135	AD7	D7	I/O	Data bus 7
136	AD8	D8	I/O	Data bus 8
137	AD9	D9	I/O	Data bus 9
138	AD10	D10	I/O	Data bus 10
139	GND	GND	–	GND
140	AD11	D11	I/O	Data bus 11
141	AD12	D12	I/O	Data bus 12
142	AD13	D13	I/O	Data bus 13
143	AD14	D14	I/O	Data bus 14
144	VCC	V+3D	–	V+3D
145	AD15	D15	I/O	Data bus 15
146	A0 (XHBS)	A0	O	Address bus 0
147	A1	A1	O	Address bus 1
148	A2	A2	O	Address bus 2
149	GND	GND	–	GND
150	A3	A3	O	Address bus 3
151	A4	A4	O	Address bus 4
152	A5	A5	O	Address bus 5
153	A6	A6	O	Address bus 6
154	A7	A7	O	Address bus 7
155	A8	A8	O	Address bus 8
156	A9	A9	O	Address bus 9
157	A10	A10	O	Address bus 10
158	A11	A11	O	Address bus 11
159	A12	A12	O	Address bus 12
160	A13	A13	O	Address bus 13
161	A14	A14	O	Address bus 14
162	A15	A15	O	Address bus 15
163	A16	A16	O	Address bus 16
164	A17	A17	O	Address bus 17
165	VCC	V+3D	–	V+3D
166	A18	A18	O	Address bus 18
167	A19	A19	O	Address bus 19
168	A20	A20	O	Address bus 20
169	A21	A21	O	N.C.
170	XNMI	XNMI	I	V+3D
171	GND	GND	–	GND
172	XCS10	–	O	N.C.
173	XCS20	XCS20	O	Chip select signal output of the flash ROM
174	XCS22	–	O	N.C.
175	XCS23	XCS23	O	Chip select signal output of the SRAM
176	XCS2	–	O	N.C.

■ MB86373 (DVDM ASSY : IC18)

- **MPEG2 Decoder IC**

● **Block Diagram**



● Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	CLKSEL	I	ON/OFF signal of PLL ("H" : ON, "L" : OFF)	27	VDD	–	2.5V power supply
2	DIGCPN7	O	Digital component signal output (MSB) Digital Y signal output (9-bit) (MSB)	28	DIGCOMP4	O	Digital composite signal output Digital C signal output
3	VSS	–	GND	29	DIGCOMP3		
4	DIGCPN6	O	Digital component signal output Digital Y signal output (9-bit)	30	DIGCOMP2		
5	DIGCPN5			31	DIGCOMP1		
6	DIGCPN4			32	DIGCOMP0		Digital composite signal output (LSB) Digital C signal output (LSB)
7	DIGCPN3			33	DACK	O	27 MHz clock output
8	DIGCPN2			34	N.C.	–	Non connection
9	DIGCPN1			35	VSSA3	–	GND (D/A converter)
10	VDD	–	2.5V power supply	36	ANAC	O	Analog color (C) output signal
11	DIGCPN0	O	Digital component signal output (LSB) Digital Y signal output (9-bit) (LSB)	37	VDDA3	–	2.5V power supply (for built-in D/A converter only)
12	RBSEL	O	Cb and Cr discrimination signal at the digital component signal output. LSB at the digital Y signal output.	38	VSSA2	–	GND (D/A converter)
13	XHS	O	Horizontal sync. output signal	39	ANAY	O	Analog luminance (Y) output signal
14	XVS	O	Vertical sync. output signal	40	VDDA2	–	2.5V power supply (for built-in D/A converter only)
15	VSS	–	GND	41	VREF	I	Reference voltage for D/A converter
16	XRESET	I	LSI reset signal	42	VRO	O	Internal current setting pin of D/A converter
17	XLDCSYNC	I	External sync. signal input (LD mode)	43	VDDA4	–	2.5V power supply (for built-in D/A converter only)
18	KEY	O	KEY signal for LD and OSD overlay (LD mode)	44	VSSA1	–	GND (D/A converter)
19	PD	O	Phase comparison result output signal of horizontal sync. (LD mode)	45	ANACOMP	O	Analog composite output signal
20	VFLD	O	Field discrimination signal at the digital signal output H : even field L : odd field	46	VDDA1	–	2.5V power supply (for built-in D/A converter only)
21	DIGCOMP9	O	Digital composite signal output (MSB) Digital C signal output (MSB)	47	BF	O	Burst flag signal
22	DIGCOMP8	O	Digital composite signal output Digital C signal output	48	XBLK	O	H/V composite blanking signal
23	DIGCOMP7			49	TEST4	O	Normally, set to "open".
24	DIGCOMP6			50	VSS	–	GND
25	DIGCOMP5			51	TEST0	I	Normally, set to "open".
26	VSS	–	GND	52	TEST1	I	"L" status normally

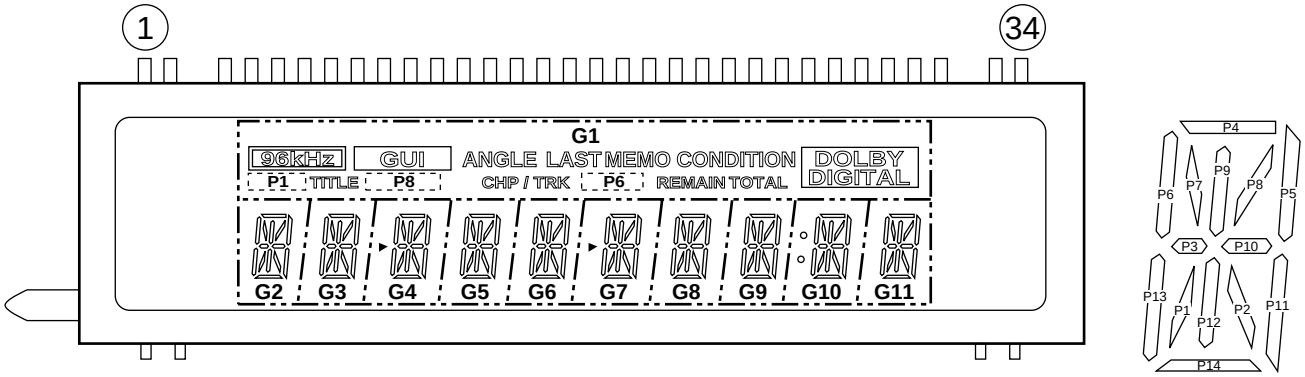
No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
53	DAIIN	I	Digital data input of external input (SPDIF)	92	HADRS10	I	CPU address bus signal (MSB)
54	CDDATA	I	Audio data input of external input (correspond to CD)	93	HADRS9	I	CPU address bus signal
55	CDLR	I	Data channel clock input of external input (correspond to CD)	94	HADRS8		
56	CDBCK	I	Data clock input of external input (correspond to CD)	95	HADRS7		
57	AODATA3	O	Audio decode data	96	VSS	–	GND
58	AODATA2			97	VDD	–	2.5V power supply
59	AODATA1			98	HADRS6	I	CPU address bus signal
60	VSS	–	GND	99	HADRS5		
61	VDD	–	2.5V power supply	100	HADRS4		
62	AODATA0	O	Audio decode data	101	HADRS3		
63	AOPCM	O	Digital audio interface output (compression data)	102	HADRS2		CPU address bus signal (LSB)
64	AODAI	O	Digital audio interface output (decode data)	103	HDATA15	I/O	CPU data bus signal (MSB)
65	LRCK	O	Data channel clock for D/A and digital filter	104	HDATA14		CPU data bus signal
66	AOMCK	O	Master clock for D/A and digital filter	105	HDATA13		
67	BCK	O	Bit clock for D/A and digital filter	106	HDATA12		
68	TEST2	I	Normally, set to "open".	107	VSS	–	GND
69	TEST3			108	HDATA11	I/O	CPU data bus signal
70	NC	–	Non connection	109	HDATA10		
71	XDSPRST	I	Normally, set to "open".	110	HDATA9		
72	VSS	–	GND	111	HDATA8		
73	TEST5	O	Normally, set to "open".	112	HDATA7		
74	NC	–	Normally, set to "open".	113	HDATA6		
75	NC			114	VDD	–	2.5V power supply
76	NC			115	HDATA5	I/O	CPU data bus signal
77	NC			116	HDATA4		
78	SD7	I	Parallel data input	117	HDATA3		
79	VDD	–	2.5V power supply	118	HDATA2		
80	SD6	I	Parallel data input	119	VSS	–	GND
81	SD5			120	HDATA1	I/O	CPU data bus signal
82	SD4			121	HDATA0		CPU data bus signal (LSB)
83	SD3			122	BUSSEL	I	Bus width selection signal (0 : 8-bit bus, 1 : 16-bit bus)
84	SD2			123	XOSDACK	I	OSD data acknowledge signal
85	VSS	–	GND	124	XOSDREQ	O	OSD data request signal
86	SD1	I	Parallel data input	125	HCPUSEL1	I	CPU selection signal (00 :SPARC, 01 :86 system, 10 :68 system, 11 :Reserve)
87	SD0			126	HCPUSEL0		
88	XERR	I	Error input signal	127	XINT3	O	Interrupt request signal to the CPU
89	XSACK	I	Acknowledge signal	128	XINT2		
90	XTEST	I	Set to "H" at normal use	129	XINT1		
91	SREQ	O	Data request signal	130	VSS	–	GND

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
131	VDD	–	2.5V power supply	170	XMDRCAS	O	CAS signal for SDRAM
132	XINT0	O	Interrupt request signal to CPU	171	XMDRDQM1	O	Input mask / output enable signal for SDRAM
133	XEXTRDY	O	SPARC, 68 system : Ready signal to CPU 86 system : Acknowledge (ACK) signal to CPU	172	VSS	–	GND
134	HRW	I	CPU read / write signal	173	XMDRWE	O	Write enable signal for SDRAM
135	HCLKIN	I	Host clock input	174	XMDRDQM0	O	Input mask / output enable signal for SDRAM
136	XHCS	I	LSI chip select signal	175	MDRDAT8	I/O	Data bus signal for SDRAM
137	XHAS	I	SPARC, 68 system : CPU address strobe 86 system : CPU address status	176	VSS	–	GND
138	XHBE3	I	CPU byte enable signal	177	MDRDAT7	I/O	Data bus signal for SDRAM
139	XHBE2			178	MDRDAT9		
140	XHBE1			179	MDRDAT6		
141	XHBE0			180	MDRDAT10		
142	VSS	–	GND	181	MDRDAT5		
143	MDRADR4	O	Address signal for SDRAM	182	VSS	–	GND
144	MDRADR3			183	VDD	–	2.5V power supply
145	MDRADR5			184	MDRDAT11	I/O	Data bus signal for SDRAM
146	MDRADR2			185	MDRDAT4		
147	VDD	–	2.5V power supply	186	MDRDAT12		
148	VSS	–	GND	187	MDRDAT3		
149	MDRADR6	O	Address signal for SDRAM	188	MDRDAT13		
150	MDRADR1			189	VSS	–	GND
151	MDRADR7			190	MDRDAT2	I/O	Data bus signal for SDRAM
152	MDRADR0		Address signal for SDRAM (LSB)	191	MDRDAT14		
153	MDRADR8		Address signal for SDRAM	192	MDRDAT1		
154	VSS	–	GND	193	MDRDAT15		Data bus signal for SDRAM (MSB)
155	TEST6	I	"L" status normally	194	MDRDAT0	I/O	Data bus signal for SDRAM (LSB)
156	TEST7			195	VSS	–	GND
157	TEST8			196	N.C.	–	Non connection
158	TEST9			197	ICK27M	I	System clock input
159	MDRADR10	O	Address signal for SDRAM	198	VSS	–	GND
160	MDRADR9			199	OCK27M	O	System clock output
161	MDRADR11		Address signal for SDRAM (MSB)	200	VSSA(VCO)	–	GND (for VCO only)
162	XMDRCS	O	Chip select signal for SDRAM	201	VDDA(VCO)	–	2.5V power supply (for VCO only)
163	MDRCKE	O	Clock enable signal for SDRAM	202	ILPF	O	PLL block inverter output for audio
164	VSS	–	GND	203	MLPF	I	PLL block inverter input for audio
165	VDD	–	2.5V power supply	204	OLPF	O	Phase detector output for audio
166	XMDRRAS	O	RAS signal for SDRAM	205	OVCO	I	VCO input for audio clock
167	MDRCLK	O	Clock output signal for SDRAM	206	VSS	–	GND
168	VSS	–	GND	207	XPLLRST	I	PLL section reset signal
169	MDRCLKIN	I	Clock input signal for SDRAM	208	XSYNCRST	I	SYNC reset signal

7.2.2 DISPLAY

■ VAW1046 (FLKY ASSY : V101)

• FL DISPLAY



• ANODE AND GRID ASSIGNMENT

	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11
P1	P1	P1	P1	P1	P1	P1	P1	P1	P1	P1	P1
P2	ANGLE	P2	P2	P2	P2	P2	P2	P2	P2	P2	P2
P3	TITLE	P3	P3	P3	P3	P3	P3	P3	P3	P3	P3
P4	LAST MEMO	P4	P4	P4	P4	P4	P4	P4	P4	P4	P4
P5	CONDITION	P5	P5	P5	P5	P5	P5	P5	P5	P5	P5
P6	P6	P6	P6	P6	P6	P6	P6	P6	P6	P6	P6
P7	CHP/TRK	P7	P7	P7	P7	P7	P7	P7	P7	P7	P7
P8	P8	P8	P8	P8	P8	P8	P8	P8	P8	P8	P8
P9	REMAIN	P9	P9	P9	P9	P9	P9	P9	P9	P9	P9
P10	DOLBY DIGITAL	P10	P10	P10	P10	P10	P10	P10	P10	P10	P10
P11	GUI	P11	P11	P11	P11	P11	P11	P11	P11	P11	P11
P12	96kHz	P12	P12	P12	P12	P12	P12	P12	P12	P12	P12
P13		P13	P13	P13	P13	P13	P13	P13	P13	P13	P13
P14		P14	P14	P14	P14	P14	P14	P14	P14	P14	P14
P15	TOTAL			▷			▷			○ ○	

• PIN ASSIGNMENT

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Assignment	F1	F1	NP	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2

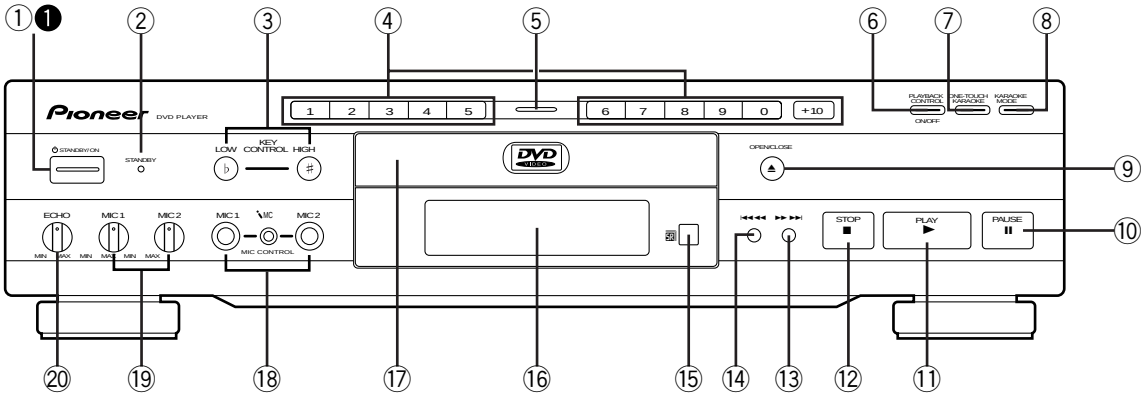
Pin No.	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Assignment	P1	G11	G10	G9	G8	NL	NL	G7	G6	G5	G4	G3	G2	G1	NP	F2	F2

F1, F2 : Filament G1~G11 : Grid P1~P15 : Anode NP : No Pin NL : No Lead

8. PANEL FACILITIES AND SPECIFICATIONS

8.1 PANEL FACILITIES

■ FRONT PANEL



① [Models having a STANDBY/ON button on the main unit]
⏻ STANDBY/ON button
Press to switch the player on or to put in standby.

❶ [Models having a POWER switch on the main unit]
POWER switch
Press to switch the player on or off.
When this switch is “ON”, the remote control can be used to switch the player between the “ON” state and standby.

② **STANDBY indicator**
Indicates that the player is in standby, using a minimum amount of power to maintain system settings.
Turns off when the player is on.

③ **KEY CONTROL buttons**
Use to adjust the levels of the key in 11 steps.

④ **Number buttons (1-9, 0, +10)**
Use to perform direct title and chapter/track searches, and to input numerical values.

⑤ **Disc illumination**
Lights when a DVD is loaded and when no disc is loaded. Turns off when a disc format other than DVD is loaded in the player.

⑥ **PLAYBACK CONTROL button and indicator**
Use to switch the playback control for the Super VCD/Video CD on or off.

⑦ **ONE-TOUCH KARAOKE button and indicator**
Use to switch One-Touch Karaoke mode on or off.

⑧ **KARAOKE MODE button and indicator**
Use to switch between Karaoke mode and Normal mode.

⑨ **OPEN/CLOSE ⏏ button**
Press to open and close the disc tray.

⑩ **PAUSE ❚❚ button**
Press during playback to pause. Press again to resume playback.

⑪ **PLAY ► button**
Press to start or resume playback.

⑫ **STOP ■ button**
Press to stop playback. Pressing once enables playback to resume from a point shortly before the location where it stopped. Pressing twice causes the disc to return to the beginning of the disc if playback starts again. Resume play is possible only in Normal mode.

⑬ **►► ►►| (forward) button**
Press to advance to chapters/tracks. Press and hold to perform fast-forward scanning.

⑭ **|◄◄ ◄◄ (reverse) button**
Press to go back to previous chapters/tracks. Press and hold to perform reverse playback scanning.

⑮ **Remote sensor**
Point the remote control toward the remote sensor to operate the player.

⑯ **Display window**
Displays system information.

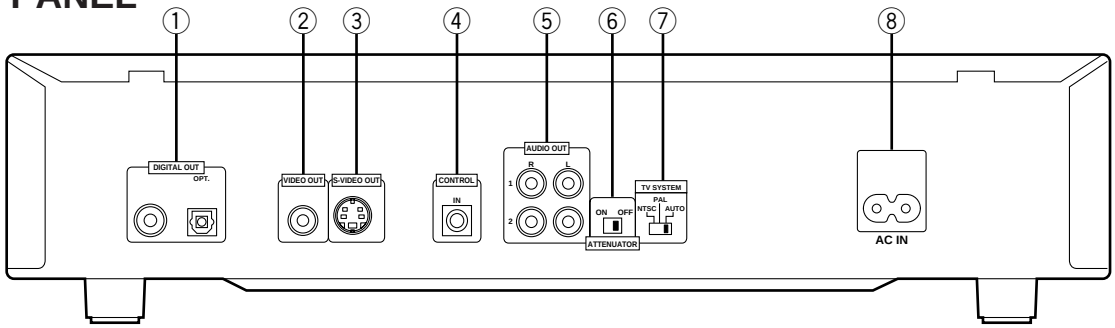
⑰ **Disc tray**
When loading a disc, place a disc in the disc tray with the label side facing up.

⑱ **MIC1, MIC2 and MIC CONTROL jacks**
Use to connect a microphone.

⑲ **MIC1 and MIC2 volume level knobs**
Use to adjust the volume level of the microphone.

⑳ **Digital Echo level knob**
Use to adjust the echo level.

■ REAR PANEL



① **DIGITAL OUT jacks (coaxial, optical (OPT.))**
Use to output the digital audio signal recorded on discs. You can output the digital signal via either coaxial or optical output jack to an AV amplifier or receiver.

② **VIDEO OUT jack**
Connect to the video input on a TV or monitor or AV amplifier or receiver with video input capability.

③ **S-VIDEO OUT jack**
If your TV or monitor has an S-video input, clear picture reproduction is possible by connecting the player to your TV or monitor via the S-video jack.

④ **CONTROL IN jack**
Use to connect this player to another component bearing the Pioneer mark. This lets you control this unit as though it were a component in a system. Player operations are then performed by pointing the remote control at the component that the player is connected to.

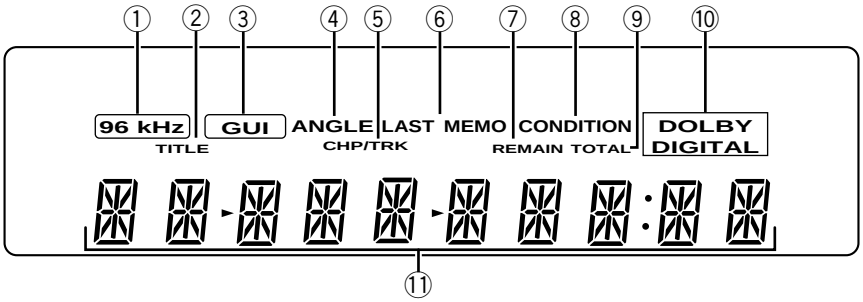
⑤ **AUDIO OUT jacks**
Use to output two-channel audio (analog) to the audio stereo inputs on a TV or stereo amplifier. If you are connecting to a receiver that has both digital and analog input jacks for DVD player connection, it may be beneficial to make both connections.

⑥ **ATTENUATOR switch**
Usually set to OFF. Switch it ON if the sound is distorted when enjoying Karaoke.

⑦ **TV SYSTEM switch**
Use to change the TV signal mode to either PAL or NTSC according to the type of TV and disc to be used. When the switch is in the AUTO position, the player outputs the format on the disc as is.

⑧ **AC IN power cord connection terminal**
Use to connect the power cord to the wall outlet.

■ DISPLAY WINDOW



① **96 kHz indicator**
Indicates play of a disc outputting an audio signal with a sampling frequency of 96 kHz.

② **TITLE indicator**
Indicates a title number is being displayed.

③ **GUI indicator**
ILights when the Karaoke or Setup on-screen menus are being displayed.

④ **ANGLE indicator**
Indicates Multi-Angle playback is in progress.

⑤ **CHP/TRK indicator**
Indicates a chapter or track number is being displayed.

⑥ **LAST MEMO indicator**
Indicates the Last Memory location is recorded in memory for the currently loaded DVD or Video CD.

⑦ **REMAIN indicator**
Indicates that the remaining playback time of a title or chapter/track is being displayed.

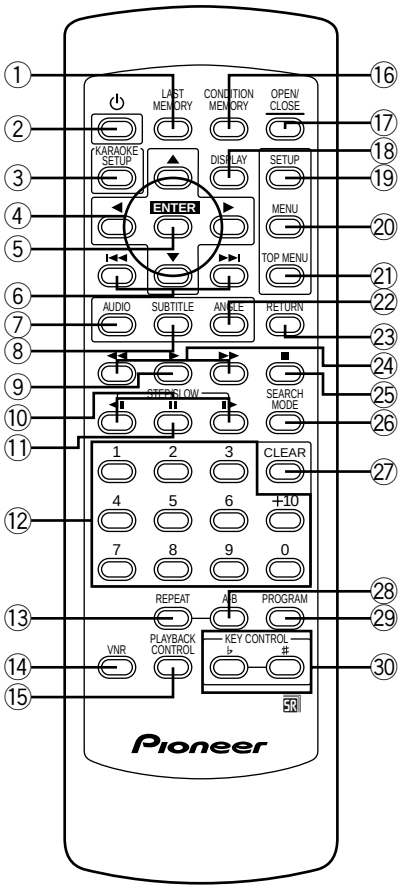
⑧ **CONDITION indicator**
Indicates that Condition Memory settings are memorized for the currently loaded DVD.

⑨ **TOTAL indicator**
Indicates that the disc in the player is stopped and **DISPLAY** has been pressed.

⑩ **DOLBY DIGITAL indicator**
Indicates Dolby Digital audio playback on DVDs.

⑪ **Counter display**
Displays the playback mode, type of disc, title and chapter/track numbers, playback time, etc.

■ REMOTE CONTROL



(Buttons indicated with * are used for menu operation.)

① **LAST MEMORY button**

You can resume DVD or Video CD playback from the point you last watched even if the disc is removed from the player. Press **LAST MEMORY** during playback to set a Last Memory point. When you want to resume playback of that disc, press **LAST MEMORY** in the stop mode and playback starts from the memorized point. Last Memory locations can be stored for up to 5 DVDs and 1 Video CD.

② **⏻ (standby/on) button**

Press to switch the player on or to put in standby.

③ **KARAOKE SETUP button***

Press to open or close the Karaoke Setup screen.

④ **Cursor buttons (◄/►/▲/▼)***

Use to move through the options on menu screens and to change settings.

⑤ **ENTER button***

Use to implement settings selected with the cursor buttons or to set items highlighted in a menu.

⑥ **I◄◄ (previous)/►►I (next) buttons**

During playback, press I◄◄ to go back to a previous chapter/ track and ►►I to advance to the next chapter/track.

⑦ **AUDIO button**

Press repeatedly to select one of the audio languages and/or audio formats programmed on a DVD.
For Video CD and CD in Normal mode, each press changes the audio output as follows.

For Super VCD, each press changes the audio output as follows.

• Normal mode

Stereo → 1/L (Left) → 2/R (Right)

• Karaoke mode

1 ⟷ 2

1 Stereo → 1L → 1R
2R ← 2L ← 2 Stereo

⑧ **SUBTITLE button**

Press repeatedly to select one of the subtitle languages programmed on a DVD or to turn the subtitles off.

⑨ **► (play) button**

Press to start disc playback.

⑩ **STEP/SLOW ◄II/II► buttons**

Press **STEP/SLOW II►** during playback to view slow playback. In pause mode, press **STEP/SLOW II►** to advance DVDs and Super VCDs/Video CDs frame by frame and **STEP/SLOW ◄II** to back up a few frames at a time. Reverse STEP/SLOW is not possible with a Super VCD/Video CD.

⑪ **II (pause) button**
Press to pause playback of a disc. Press again to resume playback.

⑫ **Number buttons (1-9, 0, +10)***
Use to perform direct title and chapter/track searches, and to input numerical values.

⑬ **REPEAT button**
Press to repeat playback.

⑭ **VNR button**
Press to turn on the video noise reduction function.

⑮ **PLAYBACK CONTROL button**
Use to switch the playback control for the Super VCD/Video CD on or off.

⑯ **CONDITION MEMORY button**
You can store in memory the settings for up to 15 DVDs. Press **CONDITION MEMORY** during DVD playback to memorize the settings.

⑰ **OPEN/CLOSE button**
Press to open or close the disc tray.

⑱ **DISPLAY button**
Press during playback to display statistical disc information. Press repeatedly to display different information.

⑲ **SETUP button***
Press when the player is in either play or stop mode to open and close the Setup screen.

⑳ **MENU button***
Use to display or close the DVD menu screen.

㉑ **TOP MENU button***
Press to call up the top menu programmed on the DVD. Depending on the DVD, the top menu may be identical to the DVD menu.

㉒ **ANGLE button**
Some DVDs are recorded with various camera angle playback options. Press **ANGLE** repeatedly to display different camera angles.

㉓ **RETURN button***
Use to go one menu back (current settings are maintained). Use **RETURN** when you do not want to change the option setting in a menu.

㉔ **◄◄ (fast reverse)/►► (fast forward) buttons**
During playback of DVD, Super VCD and Video CD, press ►► to perform fast forward scanning. Press ◄◄ to perform fast reverse scanning of DVD, Super VCD and Video CD. When a CD is loaded, audio scanning is performed.

㉕ **■ (stop) button**
Press to stop playback. In Normal mode, pressing once enables playback to resume from a point shortly before the location where it was stopped. Pressing twice causes the disc to return to the beginning of the disc when playback starts again. Resume play is possible only in Normal mode.

㉖ **SEARCH MODE button**
Press to perform a title, chapter/track or time search.

㉗ **CLEAR button**
Works in conjunction with a number of player functions. Use to cancel repeat.

㉘ **A-B button**
Press at the beginning and end of the section you want to repeat or to mark a location you want to return to.

㉙ **PROGRAM button**
You can use this button to program up to 24 subsequent tracks while you are singing.

㉚ **KEY CONTROL buttons**
Use to adjust the levels of the key in 11 steps.

8.2 SPECIFICATIONS

General

System ..... DVD system, Video CD system and Compact Disc digital audio system
Power requirements .. AC 110-127, 220-240 V, 50/60 Hz
Power consumption ..... 14 W
Power consumption in standby mode ..... 0.9 W
Weight ..... 3.0 kg (6 lb 6 oz)
Dimensions ..... 420 (W) x 288 (D) x 104 (H) mm
(16 $^{9}/_{16}$ (W) x 11 $^{1}/_{3}$ (D) x 4 $^{1}/_{16}$ (H) in.)
(Not including protruding cables, etc.)

Operating temperature . +5°C to +35°C (+36°F to +96°F)
Operating humidity ..... 5% to 85% (no condensation)

S-Video output

Y (luminance) - Output level ..... 1 Vp-p (75 Ω)
C (color) - Output level ..... 286 mVp-p (75 Ω)
Jack ..... S-VIDEO jack

Video output

Output level ..... 1 Vp-p (75 Ω)
Jack ..... RCA jack

Audio output

Output level ..... 200 mVrms (1 kHz, –20 dB)
Number of channels 2
Jacks ..... RCA jacks

Digital audio characteristics

Frequency response .... 4 Hz to 44 kHz (DVD fs: 96 kHz)
S/N ratio ..... 115 dB
Dynamic range ..... 102 dB
Total harmonic distortion 0.002%
Wow and flutter ..... Limit of measurement (±0.001% W. PEAK) or lower

Digital output

Optical digital output ..... Optical digital jack
Coaxial digital output ..... RCA jack

Other terminals

CONTROL IN ..... Minijack (3.5 ø)

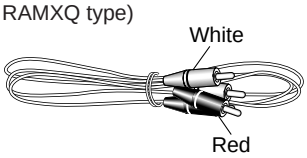
Accessories

Remote control unit 1
AA (R6P) dry cell batteries 2
Audio cord 1
Video cord 1
Power cord 1
Operating Instructions 1

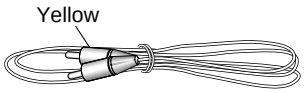
Note:
The specifications and design of this product are subject to change without notice, due to improvement.

■ Accessories

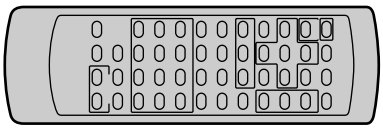
Audio cord (L=1.5m)
(VDE1033: RL, RL/RD, RD/RA type)
(VDE1054: RAMXQ type)



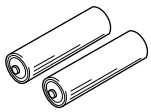
Video cord (L=1.5m)
(VDE1034: RL, RL/RD, RD/RA type)
(VDE1055: RAMXQ type)



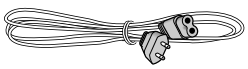
Remote control unit
(CU-DV048): VXX2642



AA/R6P batteries
(VEM-013: RL, RL/RD, RD/RA type)
(VEM1010: RAMXQ type)



Power cord
(ADG1127: RL, RL/RD type)
(ADG7018: RAMXQ type)
(ADG7003: RD/RA type)



Operating instructions